Psychological Wellbeing as a Consequence of Situational Elements in the New Labour Market

Thesis submitted by

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Academic

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ABSTRACT

Approximately four thousand call centres employ more than 160,000 people in Australia, yet relatively little attention has been paid to how this type of work influences the wellbeing of those who do it – despite substantially higher absence frequencies and turnover rates relative to other industries. Utilising a survey design, the present study compared two situational elements models in their prediction of context-free and job-related psychological wellbeing in two samples of public sector call centre operators. The replicated findings were that the situational elements relating to the importance of clarity for how to derive social value and meet the expectations of the work environment were most predictive of psychological distress, life and job satisfaction. While the availability of money was also predictive of life satisfaction, situational elements relating to Job Scope were important to the prediction of job satisfaction. The addition of Job Scope variables found that Warr's (1987) model of Principal Environmental Influences was a stronger predictor of job satisfaction than Jahoda's (1981) Access to Categories of Experience (ACE) model. Therapeutic recommendations for job re-design required enrichment rather than simplification of call work.

CHAPTER ONE: IMPLICATIONS FOR THE NEW LABOUR MARKET

1.1 Overview

Evidence suggests that work roles designed to suit the principle of 'economic rationalism' (maximising profit by minimising costs) may adversely affect the psychological wellbeing of people who fulfil them. One work-role considered representative of highly economically rationalised working conditions is the telephone operator within a 'Call Centre'. Call centre operators engage in a repetitious, monotonous short-cycling routine of customer service interaction by telephone. The mental, physical and emotional demands experienced by operators have been reported as workplace stressors that contribute to job strain outcomes, manifesting in poorer states of psychological wellbeing and notoriously high rates of turnover. Therefore, the impact of this work role has implications for both the mental health of employees and the financial viability of the call centre industry. One way to explain the impact of work roles upon psychological wellbeing is by examining the experiences obtained from the daily job routine. One approach to this explanation considers psychological wellbeing dependent upon access to experiences that enable a sense of social comparison, social status and enmeshment in a collective purpose. Another approach incorporates these 'social reference' factors and extends the analysis by considering the influence of other environmental elements, including job characteristics. The present study compares the utility of both approaches in predicting psychological wellbeing among Australian call centre operators.

1.2 The New Labour Market

Globalisation has increased commercial market pressure, requiring greater efficiency of business operations (Sparks, Faragher & Cooper, 2001). The pressure of market competition has led companies to wholly endorse principles of economic

rationalism, carefully scrutinising labour processes by their dollar-value, to the point where services are reduced, eliminated or work-roles are changed or outsourced to become less of a cost to business outcomes (e.g., Bijlsma-Frankema & Koopman, 2004; Isaksson, Hogstedt, Eriksson & Theorell, 2000; Sparks et al., 2001). This approach has had the effect of narrowing the breadth of work tasks within work roles to include only those that are tangible and measurable through "…a concentration on cost-saving to the neglect of service quality…" (Heery, 1998, p. 85). Work roles that formerly did not contribute to the profitability of business outcomes have been eliminated, re-designed or taken over by new technologies, with a view to improving business competitiveness and the share of available market revenue (Heery, 1998).

A consequence of such economic rationalism is that labour is often treated as a disposable commodity through temporary contractual arrangements (Heery, 1998) and 'de-humanising' conditions of employment (e.g., Jahoda, 1982), where jobs are designed without consideration for their impact upon the people that fulfil them. The primary focus has been an increase of managerial control over business operations to ensure maximal profitability (Bijlsma-Frankema & Koopman, 2004). The impact upon work roles of this increasingly competitive legacy of globalisation has led to a 'New Labour Market' (Isaksson et al., 2000).

1.2.1 Scientific Management

With the increased scrutiny applied to job design, businesses have turned to the principles of 'labour specialization' developed by Adam Smith (1776: cited in Heizer & Render, 2004) and operationalized these principles with an approach resembling Taylor's (1911/ 1997) 'Scientific Management'. In the New Labour Market, this 'Neo-Taylorist' approach (e.g., Russell, 2002) involves two primary objectives when applied to job design, simplification and intensification.

Simplification is brought about when the work routine is reduced to a repetition of the same simple (short, singular) task. In arranging the employees of his engineering factory into teams responsible for processing a simple work task, Taylor (1911/ 1997) gave his employees instruction on the most efficient sequence of movements and furnished them with only the tools needed to complete the specified work unit. With workers repeating the same work units there was no longer a need to engage in inefficient movements, such as switching tools or positions, or to obtain other materials needed for a more diverse range of work tasks. Importantly, there would no longer be a need to incorporate 'mental' labour in production and the workers could do their job without deliberation (Braverman, 1974). Following this simplification of work process, Taylor (1911/ 1997) intensified quantitative expectations, demonstrating higher levels of productivity attributed to his operational re-structuring. Scientific management became widely adopted as a blueprint for mass production in manufacturing industries.

1.2.2 Scientific Management of 'White-Collar' Work

The development of microprocessor technology has facilitated an expansion of neo-taylorism to white-collar work[1] (Russell, 2002; Smith & Amick, 1989). Accordingly, there has been a narrowing of task diversity and the information space in which workers are required to manoeuvre. Work tasks have been re-designed towards ease of measurement to monitor progress towards "…insatiable demands…" (Russell, 2002, p. 469) for higher work task processing capacity, and software developments have increased the capacity for electronic performance monitoring (Taylor & Bain, 1999). Management can now quantify performance between workers or sites of operation and exert more control over the labour process than ever before (Divanna, 2003).

[1] White-collar work is indoor office-based work that requires little physical exertion (Hirsch, Kett & Trefil, 2002), also described as non-manual work (Turner, 1984). Examples include managers, clerical and sales personnel, and call centre operators.

Consequently, productivity benchmarks are set in the interests of profitability, tied to a pre-determined number of activities completed per minute, per hour, per working day, seemingly without consideration for the impact of the work upon the worker. Little attention is paid to the mental, physical and emotional activity required to complete each work task or the possibility that work demands are becoming closer to worker thresholds of total possible energetic contributions to work (Russell, 2002). Consequently, workers often engage in unpaid overtime to achieve difficult productivity expectations at the expense of their health (Sparks, Cooper, Fried, & Shirom, 1997) and high rates of work stress are being reported (Cartwright, 2000). With a greater focus on simple task processing availability, work roles in the New Labour Market are also likely to have eroded the traditional benefits of work as a social institution, reducing worker perceptions of social value and belonging to their community (e.g., Jahoda, 1982). On the whole, the New Labour Market has resulted in an "...inappropriate subordination of the importance of individual wellbeing to the firm's profitability" (Karasek, 1989, p.130).

1.2.3 Customer Service In The New Labour Market

Inspiration from the commercial drive of the New Labour Market has led to a re-design of customer service roles. An emphasis has been placed on reducing the need for face-to-face interactions and customers are increasingly encouraged to conduct their complaints, orders, claims and enquiries over the telephone. By channelling customer service in this way, businesses improve their competitive advantage by reducing the need for multiple customer service sites with expensive overheads (Taylor & Bain, 1999) thereby achieving "…putative cost reductions and economies of scale" (Taylor & Bain, 1999, p.105). The commercial benefit attributed to this shift in modality of customer service operations has led to the development of a call centre industry (Taylor & Bain, 1999; Whalen, Whalen, & Henderson, 2002).

1.2.4 Investment in call centre business

The importance of call centres to the New Labour Market is apparent in the rapid expansion of this modality of customer service delivery. In Europe, the call centre market is growing at 40% per annum, accounting for 37% (net) of all new jobs in Europe for the period 1998 through 2000 (Bagnara & Marti, 2001). Two percent of the entire British workforce is now located in call centres (Kessler, 2002), a proportion that exceeds the number of coal miners and production manufacturers in Britain (Cartwright, 2000). The number of call centre operators has surpassed the number of teachers and farmers in the Europe Union (Cartwright, 2000).

At the beginning of 2001, over 1.5 million people were employed by call centres in the United States (Fukunaga et al., 2002) and call centres were growing at 20-25% of their employee numbers per annum, a growth rate that also holds for the Australian call centre market (ACTU Call Centre Unions Group, 2001). In fact, per head of workforce population, there are more people working for call centres in Australia (8.7 in every 1000) than in the U.S. (6.5 in every 1000; Merideth, 1999: cited in URCOT, 2000). According to a report aired by the Australian Broadcasting Corporation in an episode of *Four Corners* (28/08/2000), call centres have grown to more than four thousand in number, employing more than 160,000 workers across Australia. Further, the value of the call centre industry to the Australian economy was estimated at 700 billion dollars per annum (Australian Broadcasting Corporation, 2000). In short, call centres are a rapidly expanding global phenomenon.

1.3 Call Centre Operations

A call centre is an office designed for the purpose of centralising customer service transactions conducted by telephone. Larger call centres usually feature an open plan office space that houses numerous operational workstations consisting of a computer terminal, an

ergonomically designed computer desk and chair and a headset complete with microphone (Taylor & Bain, 1999; Zapf, Isic, Bechtoldt, & Blau, 2003). Telephony is integrated within the computer, providing a 'soft-phone' that enables summaries of call status on-screen (e.g., Taylor & Bain, 1999). In addition, electronic boards are visible to all operators showing productivity data, including calls waiting to be processed (Mulholland, 2002).

While inbound call centre operations typically utilise automated call distribution systems to enable a direct routing of incoming calls to the first available workstation (Taylor & Bain, 1999), outbound call centre operations use predictive dialling systems that select potential business customers and automatically dial their number, connecting the call to the first available workstation, which typically involves 'cold-canvass' telemarketing (Callaghan & Thompson, 2002). In either mode of operation, the simplification of call work has led to operators being arranged in teams corresponding to sections that work within a content-specific information portal. Rather than requiring complex knowledge across a range of different information portfolios, operators are generally limited to one of these portfolios to facilitate a higher rate of call processing (e.g., Taylor & Bain, 1999). Similarities of work process between the outbound and inbound call centre operations are apparent in the tools used, role governance and the influence of electronic monitoring (Callaghan & Thompson, 2002; Taylor & Bain, 1999). Both modes of operation require that operators scan and interpret on-screen information, use a keyboard to extract or input data while conducting customer interactions (Taylor & Bain, 1999). Of primary interest to the present study is inbound call centre operations.

1.3.1 The Call Centre Operator Work Role

Inbound call centre operators (hereafter referred to as call centre operators) are call centre employees who answer customer enquiries by telephone. They carry out their duties at a single workstation, tethered to a headset throughout the duration of their working day,

ergonomically positioned in front of a computer (Bagnara & Marti, 2001). While partitioning between workstations blocks the view of other operators in a bid to minimise visual distraction and mutual noise interference, consistent low-level noise from other operators is inescapable (Bagnara & Marti, 2001).

Call centre operators are required to inhibit their own personal reactions to callers, resolve the enquiries within their prescribed information portfolio and project a positive image of the business, consistent with organisational expectations (Bagnara & Marti, 2001). With customer contact lasting less than two minutes on average (Merchants' Ltd, 1998: cited in Bagnara & Marti, 2001), their routine is short cycling, repetitive and monotonous (Taylor, Baldry, Bain & Ellis, 2003).

To ensure operators adhere to an intensified rate of call processing, extensive electronic performance monitoring is undertaken (Taylor & Bain, 1999). Call centre operators are monitored for how many calls they process per specified time period (call volume), how long each call takes (call duration) and how long it takes to complete post-call administration (Deery, Iverson & Walsh, 2002; Taylor et al., 2003; Witt, Andrews & Carlson, 2004). Also monitored are number of calls diverted, placed on-hold, or disconnected (Taylor & Bain, 1999).

With the expectation that operators be available to attend to customer enquiries for 75% of their paid work time (Taylor et al., 2003), less time is spent on post-call administration thereby decreasing the length of time between calls. To ensure operators are available for this regime, supervisors also monitor how long is spent away from the workstation (downtime), including toilet, tea and lunch breaks (Mulholland, 2002; Taylor & Bain, 1999). To ensure service quality under these conditions, call quality checks are also periodically carried-out with supervisors remotely 'listening-in' to calls (Taylor & Bain, 1999).

The pressure for call availability (to the minute), in the context of regular performance reviews informed by the monitoring process, leads to limited movement about the office space and limited co-worker contact in favour of call handling (Mulholland, 2002). With the constant flow of inbound calls[2], call centre work has been likened to assembly line production (Taylor & Bain, 1999), labelled white-collar 'factory' work (Gilmore, 2001), and call centres themselves have been characterised as modern-day sweatshops (Cartwright, 2000). Characteristics of the call centre operator work role are eloquently summarised by Taylor and Bain (1999, p.115):

> The typical call centre operator is young, female and works in a large, open plan office or fabricated building, which may well justify the white-collar factory description. Although probably full-time, she is increasingly likely to be a part-time permanent employee, working complex shift patterns which correspond to peaks of customer demand. Promotion prospects and career advancement are limited so that the attraction of better pay and conditions in another call centre may prove irresistible. In all probability, work consists of an uninterrupted and endless sequence of similar conversations with customers she never meets. She has to concentrate hard on what is being said, jump from page to page on a screen, making sure that the details entered are accurate and that she has said the right things in a pleasant manner. The conversation ends and as she tidies up the loose ends there is another voice in her headset. The pressure is intense because she knows her work is being measured, her speech monitored, and it often leaves her mentally, physically and emotionally exhausted.

1.4 Demands Of The Call Centre Operator Work Role

Designed in the context of mass production (Russell, 2002) and the scientific management principles of simplification and intensification, the prescribed routine and monitoring practices suggest that substantial mental, physical and emotional effort is required of call centre operators.

[2] Estimates of daily inbound call volumes range from 60 (more complex enquiries) to 250 per shift (Zapf et al., 2003).

1.4.1 Mental Demands of Call Centre Work

1.4.1.1 Information handling

Call centre operators are required to access multiple sources of information per call, switching between software applications on screen, consulting calendars or other paper-based sources (Whalen et al., 2002). According to these authors, the Merchants' Ltd (1998) study of 200 call centres across the U.K. and U.S. found that more than two thirds of customer service interactions required switching between three or more applications to effect an outcome to the enquiry, suggesting that while similar enquiries may be handled within content-specific information portals, they still required multi-faceted information access. The sequencing of access to this information may be different for each enquiry, a demand on operators that was referred to as an "improvisational choreography" (Whalen et al., 2002, p.246). In addition to knowing how to access the information, and navigating their way through the solution to customer enquiries, call centre operators are required to keep abreast of technical information updates that directly affect their business process (Mulholland, 2002).

1.4.1.2 Cognitive fatigue

Decrements in clerical-type information-based task performances (lower completion rate, lower accuracy) have been observed in experimental conditions where task demands are prolonged and intensified (Cohen, 1978, 1980; Cohen & Spacapan, 1978) or where more mental operations are required (Macdonald, 2003). Using attention allocation and response inhibition tasks in experimental settings, Cohen and colleagues were able to induce cognitive fatigue – "…an insufficient reserve of attention to perform demanding tasks" (Cohen, 1980, p. 97). Cohen (1980) concluded that such an effect might also be found upon application to a "…high information rate task…" (p. 97).

The intensified rate of information handling in the call centre operator work role may lead to a faster depletion of cognitive resources, as Cohen (1980) had hypothesised. The allocation of attention to opening the customer enquiry, carrying out the sequencing of information required to solve the enquiry as quickly and as accurately as possible, before moving on to the next call is likely to result in a faster rate of cognitive fatigue. Considering this process occurs while the operator maintains a conversation with the customer, and will occur between 60 and 250 times per shift (e.g., Zapf et al., 2003) suggests that the short cycling repetitive nature of call work demands much mental effort. Indeed, the cognitive fatigue associated with constant mental switching between information sources and customers is reminiscent of previous studies that have demonstrated diminished clerical task performance upon telephone-based interruptions (e.g., Zijlstra, Roe, Leonora & Krediet, 1999). High levels of distractibility are known to increase mental load, subsequently contributing to faster rates of task resource depletion compared to task conditions involving low levels of distractibility (e.g., Macdonald, 2003).

In addition to mental demands of switching and sequencing, call centre operators must actively avoid mistakes – remembering disclosure rules, inhibiting keyboard errors. Mental effort is also required to process information through multiple sensory modalities (auditory reception of customer information, visual scanning of information sources before oral response production). The pace at which work is required, the frequency and duration of task episodes and the constant inhibition of competing distractions are also implicated in the mental workload encountered by call centre operators.

1.4.1.3 Temporal and contextual factors affecting task performance

The ability to perform tasks varies throughout the day, and is subject to demand upon cognitive resources and diurnal variations in level of physiological activation (for a

review see Smith, 1995). Level of physiological activation has been found to vary throughout the working day – generally increasing in the morning, levelling off and decreasing by late afternoon before declining in the evening (Anderson & Revelle, 1994; Smith, 1992).

Contextual factors also play a role in the relationship between performance and level physiological activation (Smith, 1995). Influencing such variation is the decline in task performance after having lunch. Lower 'dips' in post-lunch performance have been found to be dependent upon the size of the meal (larger meals lead to more frequent lapses in attention) and nutritional content – higher protein content increases distractibility whereas higher carbohydrate content leads to decrements in multi-tasking (Smith, 1995). Activation is also affected by caffeine 'highs' and 'lows' (Smith, Rusted, Eaton-Williams, & Savory, 1991).

These temporal and contextual factors suggest that sustained levels of high performance in the call centre may not be possible throughout the shift. Variance in levels of activation together with cumulative effects of cognitive fatigue from the mental operations required of the role are likely to impact upon operator performance, making the constant attainment of statistical benchmarks very difficult.

1.4.2 Electronic Performance Monitoring In Call Centres

Experimental evidence suggests that the presence of monitoring increases perceived pressure towards performance expectations, having a negative effect upon perceived control, task satisfaction and performance (e.g., Stanton & Barnes-Farrell, 1996), thereby adding to the mental load experienced on task. Decrements in performance of simple clerical tasks (involving written answers and data entry) were associated with an increase in monitoring, an effect exacerbated by the awareness of monitoring, the extent of control over the monitoring process (Stanton & Barnes-Farrell, 1996), and level of task

ability (Aiello & Kolb, 1995). The conclusions from these laboratory studies converge in their suggestion that the exertion of control through electronic performance monitoring could adversely affect worker attitudes and performance, in work roles where personal control was perceived as low.

However, when performance data are used positively and constructively to address ways to improve performance it is well received by operators, positively influencing job satisfaction (Holman, Chissick, & Totterdell, 2002) and subsequent performance (Callaghan & Thompson, 2002). However, where operators reported increased pressure in the work role from the pervasive and extensive process of electronic performance monitoring, they also tended to report lower job satisfaction, higher levels of emotional exhaustion, and higher levels of job-related anxiety and negative affectivity (Holman et al., 2002). The impact of monitoring appears dependent upon the way supervisors interpret and deliver performance feedback to their subordinates (Taylor & Bain, 1999; Van Den Broek, 2002).

1.4.2.1 Supervisory relations in the call centre

An early investigation into the supervision of quantitative expectations found that electronic performance monitoring produced stricter and more coercive styles of supervision (Smith, Carayon, Sanders, Lim, & LeGrande, 1992). Investigating a combined sample of teachers, factory workers and call centre operators, Jennifer, Cowie and Ananiadou (2003) concluded that authoritarian environments such as those in which management maintain a high level of control over the process of work tasks were at risk for negative supervisory relations in the work place. These authors considered that where there is pressure to meet difficult performance benchmarks, and where workers have little

control over work processes, the supervisory relationship becomes strained (Jennifer et al., 2003).

In the call centre, the push towards difficult benchmarks of call volume becomes all the more forceful from supervisors whose performance is held accountable for the quantitative performance of their subordinates. Supervisors have engaged in ridicule, cajoling (Taylor & Bain, 1999) and "naming and shaming" (Mulholland, 2002, p. 289) practices to 'encourage' better statistical performance, regardless of difficulties in meeting benchmarks set. One call centre reported in the literature posted a 'poor performers' list for all to see (Taylor et al., 2003). It is little wonder that the interpersonal tension created in this context has been implicated in unpleasant feelings in the work environment, with negative implications for worker investment in job performance (Einarsen, 2000).

News reports have highlighted the negative influence of this atmosphere upon supervisory relations. One report exposed a telecommunications provider in Australia for allegedly punishing operators for taking toilet trips longer than the allotted time (Priest, 2003). Other reports have outlined Union initiatives to increase employee awareness of bullying by supervisors in the workplace, manifesting in deceitful, intrusive surveillance, the imposition of impossible deadlines, abusive belittling emails and shouting at operators (COMTEX, 2003; O'Brien, 2003). Given the nature of the work role and these negative performance monitoring experiences, it is not surprising that the atmosphere of the call centre has led to a growing number of complaints from call centre operators about their working conditions (Gooch, 2002).

1.4.2.2 Teamwork within call centres

While most call centres arrange operators by teams (ACA Research, 1998) this has not resulted in the social conformity benefits to quantitative outcomes that management

had hoped for (Taylor & Bain, 1999). The application of a team structure in the call centre was designed to inspire employees toward self-organisation and responsibility, so that the intensity of work became less important (Knights & McCabe, 2003). However, verbal interaction between team members is inhibited by the physical placement of workstations, partitioning, and the endless flow of work tasks (Knights & McCabe, 2003). Furthermore, the individual responsibility for difficult performance benchmarks "…forces agents to act individualistically" (Mulholland, 2002, p.294), discouraging intra-team socialisation (e.g., O'Driscoll & Beehr, 1994). In addition, quantitative performance dominates the 'team' meeting agenda (Knights & McCabe, 2003; Taylor & Bain, 1999) and there is little negotiation over labour process or expected outcomes (Mulholland, 2002; Taylor et al., 2003). As Korczynski (2002) observes "…the intensification of labour means that the fragile social order of call centre work is frequently and systematically broken down" (p.94).

1.4.2.3 Quantitative versus qualitative performance expectations

Despite their priority for the attainment of quantitative benchmarks, call centre management still hold expectations for high quality customer service (Knights & McCabe, 2003; Taylor et al., 2003), a veritable paradox of operational management (Mulholland, 2002). Mutually incompatible expectations of service quality and higher call volume have led to substantial role conflict (De Ruyter, Wetzels, Feinberg, 2001), including intra-sender (incompatible expectations from one supervisor) and inter-sender (incompatible expectations from different management delegates) types (e.g., Quick & Quick, 1984). While there is an unmistakeable clarity for demands of call volume, how to meet this expectation in light of the push for service quality and other aspects of the customer interaction is less clear. As a stressor, conflicting role expectations have been identified as a determinant of job strain outcomes such as emotional exhaustion (Jackson, Schwab, &

Schuler, 1986; Leiter & Maslach, 1988; Schwab & Iwanicki, 1982), depression**,** anxiety and stress (Bakker, Demerouti, & Schaufeli, 2003; Mulholland, 2002).

Although the business priority is to attain benchmarks of call volume (Frenkel, Tam, Korczinski, & Shire, 1998), the extent to which operators might meet these expectations is also affected by customer and enquiry characteristics. An awareness by the customer that the call is being monitored (e.g., Dormann & Zijlstra, 2003), customer preparedness upon enquiry, customer accents, rate of speech and comprehension, and the affective disposition of the caller may extend call duration (Gilmore, 2001), thereby directly impacting the volume of calls taken during the shift. Evidence suggests that approximately 10% of calls are taken from angry or irrational customers (ACA Research, 1998) or customers engaging in sexual harassment (e.g., Sczesny & Stahlberg, 2000; Taylor & Bain, 1999). Indeed, Korczynski (2002) argued that aggressive behaviour might be more likely over the phone because customer-operator interactions are removed from socially relevant non-verbal communication cues that occur in face-to-face encounters.

1.4.3 Physical Demands of Call Centre Work

Considering the mental processing demands, diurnal variations in levels of activation, potential for cognitive fatigue, the wider issues associated with the monitored call handling regime and coercion towards difficult performance benchmarks, the mental demands of the call centre operator work role are substantial. In addition, call centre operators are also subject to the physical demands of prolonged Visual Display Terminal (VDT) exposure.

1.4.3.1 Working with Visual Display Terminals (VDTs)

Despite the performance benefits of ergonomic applications to Visual Display Terminals (e.g., Smith & Bayehi, 2003), musculoskeletal symptoms are still being

reported. Pain, cramps, stiffness and numbness in the shoulders back and neck, wrists and fingers, buttocks and lower legs have been reported for workers who use VDTs for many hours at a time (DeMatteo, Denton, & Hayward, 1992; cited in Bramwell & Cooper, 1995; Taylor et al., 2003). Using VDTs for at least four hours per day was associated with an increased prevalence of shoulder symptoms in a large sample of Swedish white-collar workers (Hanse, 2002). Call centre operators working for a German bank reported headaches and backaches, and that after five or six hours per day in front of a VDT answering calls, work became strenuous (Kleemann & Matuschek, 2002).

Psychosocial factors have also been documented as influential determinants of frequency and severity of reported musculoskeletal disorders in VDT workers (Bramwell & Cooper, 1995). For example, higher workloads and lower supervisor support were associated with more upper body symptoms in an Australian sample of public and private sector VDT users (Sawyer, Dollard, & Farrin, 2002). These authors found that higher workloads were predictive of more upper body symptoms and higher reported levels of psychological distress, suggesting that high VDT-based work demands had implications for mental and physical health, findings supported by recent call centre research (Taylor et al., 2003).

While the respondents in the Sawyer et al. (2002) study worked at VDTs for an average of four hours per day, call centre operators use their VDTs throughout the duration of their shifts, which are typically between six and eight hours long (Gilmore, 2001; Kleemann & Matuschek, 2002; Russell, 2002; Taylor & Bain, 1999; Zapf et al., 2003). Compared to workers who spend less time working with VDTs, call centre operators may be considered at higher risk of physical problems relating to VDT use.

1.4.3.2 Vision, hearing and voice disorders associated with call work

In addition to musculoskeletal disorders, physical manifestations of extended VDT use have included eye and vision problems (Bramwell & Cooper, 1995). While the majority of VDT users generally report eye soreness and headaches after prolonged periods (e.g., Horgen, 1992; cited in Bramwell & Cooper, 1995), other symptoms include heightened light sensitivity, burning and reddening around the eyes, and sluggishness in adjusting focus from close to distance vision (Koitcheva & Stantchev, 1992; cited in Bramwell & Cooper, 1995; Taylor et al., 2003).

Acoustic trauma is another condition for which call centre operators may be at risk. Exposure to high-pitched noises, interference and shouting may result in symptoms including nausea, headache, tinnitus, and loss of hearing range (Hurt, 2002). Compared to non-call handlers, operators reported a significantly greater incidence of earaches (Taylor et al., 2003). While hearing loss can occur at 82 decibels, call centres sometimes have ambient noise levels in excess of 85 decibels (Hurt, 2002).

Call centre operators have also reported voice strain (Taylor et al., 2003). Voice disorders have typically manifested in symptoms such as diminished voice power and throat-scuffing coughs (Taylor et al., 2003), burning sensations, swelling pains, croakiness, squawking, and crackling (Duignan, 2003). Compared to non-call handlers working in call centres, call centre operators report significantly higher incidence of these symptoms (Taylor et al., 2003).

1.4.4 Emotional Labour in the Call Centre

While consideration has been given to the mental load, quantitative pressures and physical challenges within the call centre operator work role, the emotional labour involved in call work also requires attention.

1.4.4.1 Emotional labour in customer service work roles

Hochschild (1983) saw the regulation of emotions in human service work as an important consideration in the effort required to carry out work tasks. In addition to mental and physical labour, Hochschild (1983) proposed that "emotional labour" (p.7) contributed to the effort required to fulfil episodes of customer service.

For Hochschild (1983) who initially trained as an airline stewardess, remaining positive even in contact with unsatisfied customers was effortful, because of the regulation of emotional exchange during customer interactions. The inhibition of actual emotional disposition and initial emotional responses to customer presentations, replacing these with the maintenance of a superficial positive 'surface' act, involves a considerable energetic cost[3] (Hochschild, 1983). An increased cost is incurred through the process of reconciling the 'true' emotional response with their surface act in a bid to provide depth and sincerity to the surface act (Brotheridge & Grandey, 2002). The cost of emotional labour per service episode may therefore be considered proportional to the difference between the 'true' emotional response and the surface act, together with the energy required to reconcile this difference (Hochschild, 1983).

1.4.4.2 Emotional labour in the call centre operator work role

Selected for their sociability traits (Callaghan & Thompson, 2002), call centre operators are always expected to be "smiling down the phone" (Holman et al., 2002, p.63). In line with organisational expectations, they are paid to provide a positive and enthusiastic experience of customer service upon each and every episode of customer contact (Callaghan & Thompson, 2002). Engaging in the process of emotional labour, operators adhere to prescribed emotional 'display rules' (e.g., Diefendorff & Richard, 2003) sounding cheerful and glad to be of service, providing an air of calm to irate customers and

[3] Interference in short-term recall has been demonstrated in studies of affective suppression (e.g., Richards & Gross, 2000).

building rapport with customers often with whom they share no common ground (Callaghan & Thompson, 2002; Dormann & Zijlstra, 2003).

In addition to this surface act, operators are required to withhold any negative affective responses that may arise during customer interaction episodes (Erickson & Wharton, 1997) and leave their personal problems 'at home' (Callaghan & Thompson, 2002). Consistent with the process of emotional labour, operators are required to "…act, manage and regulate their feelings" (p.242) in line with organisational expectations (Callaghan & Thompson, 2002).

Reviews of emotional labour in call centre operations have confirmed the importance of this construct to understanding the plight of the call centre operator (Holman et al., 2002; Taylor & Bain, 1999; Taylor et al., 2003; Zapf et al., 2003). On the one hand, engaging the process of emotional labour enables the service provider to detach from the emotional content brought to the interaction by the customer, thereby protecting the service provider against a disturbance to their core emotional stability (e.g., Ashforth & Humphrey, 1993). On the other hand however, the frequency of engaging in the process of emotional labour has been linked to enduring states of emotional dissonance – a discrepancy between emotional expression and actual feeling (e.g., Zapf et al., 2003).

1.4.4.3 Emotional dissonance in call centre work

Where a high number of customer service interactions are required per shift, an enduring state of emotional dissonance may be experienced due to the constant subjugation of actual feelings and a continuance of surface acting (Hochschild, 1983; Morris & Feldman, 1996). Under the conditions of this "…human [service] assembly line…" (p. 21) Hochschild (1983) predicted that it would be harder to reconcile the 'true' emotional response with the surface act within the time allotted per service episode, resulting in a

greater experience of emotional dissonance and surface acts that become hollow or insincere.

While some authors contend that telephone-based customer service interactions may provide a positive exchange of feeling (Korczynski, 2002, p. 94), the brevity and task focus of their single[4] customer contacts suggests that reciprocal exchanges of feeling are unlikely. Compared to a call regime involving short enquiries (e.g., account balances or phone numbers), Zapf et al. (2003) found a significantly higher level of emotional dissonance was experienced in a regime requiring longer service transactions (e.g., insurance claims).

The consensus among call centre researchers is that emotional dissonance is a workplace stressor in the call centre that is uniquely predictive of job strain outcomes, most notably high emotional exhaustion and low job satisfaction (e.g., Lewig & Dollard, 2003; Zapf, Vogt, Seifert, Mertini, & Isic, 1999). The greater the emotional dissonance encountered, particularly upon aggressive or abusive customer transactions, the greater the emotional strain reported (Lewig & Dollard, 2003). High levels of emotional dissonance have also been associated with low affective organisational commitment and increasing intentions to leave the organisation (Grebner et al., 2003). Further, emotional dissonance experienced by call centre operators has led to their reports of feeling 'used-up' and 'worn-out', leading to an irritability that has spilt over to personal interactions after work (Brotheridge & Lee, 2003). There is also evidence that the longer an individual remains in a call centre operator work role, the higher their reported level of emotional strain (e.g., Deery et al., 2002; Holman et al., 2002).

Given that call centre operators experience comparable levels of emotional dissonance to human service workers (e.g., Zapf et al., 2003), it is not surprising that levels

[4] Multiple contacts with the same customer are actively discouraged by call centre management, because they are inefficient when customers call back to speak to particular operators and they are not immediately available (e.g., Korczynski, 2002).

of burnout[5] among call centre operators have been reported as equivalent to those reported by human service professionals including nurses, police and mental health workers (Singh, Goolsby & Rhoads, 1994; Von Emster & Harrison, 1998). Such outcomes have been attributed to the frequency of service interactions (e.g., Deery et al., 2002; Taylor et al., 2003) and length of time spent on the phones (Zapf et al., 2003). The experience of emotional dissonance in the call centre may therefore lead to a higher incidence of job strain, and withdrawal from the work role.

1.5 Withdrawal Behaviour: Absenteeism[6], Tenure Projections and Turnover

Under the quantitative pressure for call volume, the constant demand for mental effort, the physical challenges associated with call handling and the emotional labour of a high frequency of customer service episodes culminate in a constant depletion of energetic resources available to call centre operators. In this context, these demands represent a 'unique' combination of workplace stressors (Taylor et al., 2003). The mental, physical and emotional stressors of the call centre operator work role have direct implications for absenteeism, intentions to quit and turnover. As Van den Broek (2002) observes "…absenteeism and turnover constitute the most overt individual and external responses to the conditions of work at call centres" (p.54). Absenteeism, intentions to quit and turnover are discussed here as consequences for the stressors encountered in the work role.

1.5.1 Absenteeism

Stress-related sick leave has been estimated to cost the call centre industry in Australia 7.5 million dollars per year (ACTU Call Centre Unions Group, 2001). Compared to the national average for other employment types (5.2), Australian call centre operators took significantly more (8.7) days of sick leave per year (Hallis, 2004). In their survey,

[5] Burnout is a response to chronic emotional strain arising from interpersonal transactions. It manifests in emotional exhaustion, depersonalisation upon further interpersonal encounters, and a reduced sense of personal accomplishment from the job (Maslach, 1982).
6 Absenteeism is reported here as an outcome, deliberately avoiding the complex issue of process thoroughly detailed by colleagues elsewhere (e.g., Johns, 2002).

Hallis (2004) found that for call centre operators, at least 43% of sick days were taken when the operator was not actually physically ill. Furthermore, one of the more prominent reasons for taking sick leave when operators were not physically ill was taking respite from the stressful work environment (Hallis, 2004).

The intensity of the call centre operator work role suggests that the mental, physical and emotional demands are likely to become stressors leading to job strain outcomes that manifest in behavioural withdrawal. This reasoning is consistent with the transactional model of stress (for a review see Cooper, Dewe & O'Driscoll, 2001) and more specifically the 'health impairment hypothesis' provided by Bakker et al. (2003). These authors found that the high job demands of the call centre operator work role led to a depletion of mental, physical and emotional resources that resulted in more health problems and subsequently longer absences from work (Bakker et al., 2003). Congruent with the health impairment hypothesis, Deery et al. (2002) provided evidence from within a large Australian call centre that higher reported levels of emotional exhaustion were predictive of a higher frequency of absences.

Previous research from outside the call centre has reported that other job strain outcomes such as perceived job stress (e.g., Keller, 1984), low job satisfaction (e.g., Agho, Price & Mueller, 1992; Folkedal, Vaag, Halvari, & Svebak, 2000; Hackett, 1989; Johns, 2002; Saal & Knight, 1988) and higher levels of psychological distress (e.g., Hardy, Woods & Wall, 2003) were also predictive of a higher frequency of unplanned absences (e.g., Keller, 1984).

1.5.2 Intention to Quit

Boswell, Olson-Buchanan and LePine, (2004) found that for a sample of clerical, maintenance and administrative employees within a university setting, hindrance-related stressors in meeting performance expectations were strongly predictive of lower job

attachment, higher intentions to quit and increasing investment in active job seeking behaviour. While hindrance-related stressors may be related to the frustration encountered by operators under pressure of incompatible performance expectations of quantity and quality, the short cycling monotony of service episodes has also been implicated in intentions to quit the call centre operator work role. In one of very few studies investigating withdrawal behaviour among call centre operators, Grebner et al. (2003) found that low job complexity and low task variety predicted intentions to leave the work role, findings consistent with research outside the call centre (e.g., Houkes, Janssen, De Jonge & Bakker, 2003). Given that intentions to leave a work role have been reported as predictive of turnover (e.g., Keller, 1984), the influence of psychological wellbeing upon withdrawal from the call centre operator work role requires further investigation.

Although there is little call centre-based research investigating the relationship between job-related wellbeing and withdrawal behaviour, other studies have found lower reported levels of job satisfaction associated with higher turnover intent (Carsten & Spector, 1987; Michaels & Spector, 1982; Travers & Cooper, 1993), closer consideration of alternative employment (Connolly & Viswesvaran, 2000) and higher rates of turnover (Folkedal et al., 2000; Tsai, 2000; Van Breukelen, Van der Vlist, & Steensma, 2004). In addition to a process of gradual detachment from the organisation (e.g., Geurts, Schaufeli, & Rutte, 1999) low job satisfaction has also been associated with low levels of commitment to ongoing tenure (e.g., Cooper-Hakim & Viswesvaran, 2005).

1.5.3 Turnover

According to Burchman and Schmitt (2000), the costs associated with turnover in the call centre may be thought of as direct costs (recruiting, training, temporary ‘backfilling’ a lost position), opportunity costs (lost customers due to poor service quality, decreased productivity – having to operate under capacity) and indirect costs (reduced

morale, loss of organisational knowledge, hampered growth rates, and inefficient use of corporate staff time). Higher turnover therefore undermines the goal of cost reduction (Dormann & Zijlstra, 2003), threatening the viability of the call centre business model (Burchman & Schmitt, 2000; Higgs, 2004; Kessler, 2002).

1.5.3.1 Turnover in Australian call centres

Average turnover rates in Australian call centres are approximately 22% per annum across private and public sectors (Nixon, 2002). Turnover was higher for centres located in Sydney and Melbourne, with some estimates as high as 75% (ACA research, 2001), a trend attributable to the availability of alternative employment in major metropolitan areas (e.g., Kleemann & Matuschek, 2002). Projecting the average cost to replace a departing operator at $12,500, Bryant (2002) estimated that turnover cost the Australian call centre industry in excess of half a billion dollars per year. The more damning indication is that over two-thirds of those leaving a call centre operator work role leave the call centre industry altogether (URCOT, 2000). “If you have people churning out of a business, then it is commercial suicide not to address it, and stress is a major reason why they go” (Conboy, 2002: cited in Bryant, 2002, p.7). Despite this, only two percent of centres offered stress management training programs (Bryant, 2002).

1.6 Chapter One Summary

The pressure for profitability among businesses in the New Labour Market puts call centre management under “…constant competitive pressure to extract more value from their employees…” (Taylor & Bain, 1999, p.115). Acquiescing to the demands of global markets, call centres have utilised models of mass production in the spirit of Taylor’s (1911/ 1997) ‘Scientific Management’ to configure operator job design. Work simplification has led to intensified productivity expectations, requiring many customer service episodes per day in a repetitive, short cycling work process that demands

substantial mental, physical and emotional effort. Productivity benchmarks of call volume are enforced by extensive monitoring procedures and performance is reviewed regularly, often delivered in a negative way.

In addition, mutually incompatible performance expectations of service quality and call volume confound attempts at optimal statistical performance. The intensified nature of the work role suggests that energetic resources are likely to be constantly depleted. In response to this, operators are more likely to take sick leave and eventually leave the work role altogether. High rates of absenteeism and turnover represent a major threat to the financial viability of the call centre business model, suggesting that further research is needed to understand how the work role may negatively impact operators, so that something can be done to reduce the loss of human capital to business process.

CHAPTER TWO: MODELS OF PSYCHOLOGICAL WELLBEING

2.1 Overview

Designed in the commercial interest of the New Labour Market, the call centre operator work role requires a simplified, short cycling and repetitive call processing routine that is restricted to within a narrow information space. The extensive monitoring of work process ensures that the intensified pressure for high call volume is inescapable. In this context, the mental, physical and emotional demands reviewed in Chapter One may be conceptualised as workplace stressors when they exceed energetic resources, resulting in impaired health and wellbeing (e.g., Bakker et al., 2003). Relating this 'health impairment hypothesis' to the theoretical framework provided by the 'transactional' model of stress (e.g., Cooper et al., 2001), workplace stressors are implicated in job strain outcomes, including poorer states of general health, lower psychological wellbeing and increased behavioural withdrawal from the work role (Cooper et al., 2001).

In this chapter, discussion of the stressor – strain transaction is focused upon stressors implicated in strain outcomes considered to represent psychological wellbeing. The evidence for two situational elements models is reviewed and subsequently considered in light of how they might explain the impact of call centre work on the psychological wellbeing of call centre operators. The chapter concludes with aims and hypotheses to investigate the explanatory power of both models in predicting psychological wellbeing. Hypotheses to elucidate the relationship between job-related psychological wellbeing and indicators of behavioural withdrawal are also considered.

2.2 Definitions Of Psychological Wellbeing

Psychological wellbeing refers to the feelings about oneself and one's interpersonal interactions with others in a global or specific context (Warr, 1991) and is one of the most commonly assessed factors in the workplace stressor – job strain literature (Warr, 1994).

While some authors have assessed psychological wellbeing using a single measure of the number and severity of psychiatric symptoms (e.g., Calnan, Wainwright, Forsythe, Wall, & Almond, 2001; Iversen & Saboe, 1990), others have advocated for a multi-dimensional approach including context-free (e.g., psychological distress, life satisfaction) and job-related (e.g., job satisfaction) components (e.g., Moorman, 1993; Schleicher et al., 2004; Warr, 1990, 1994, 1999, 2002).

2.2.1. Context-Free Psychological Wellbeing

Beyond the experience of the workplace, context-free psychological wellbeing is also influenced by the situational elements of home life and the wider experience of family roles and health (Warr, 1999). Evidence suggests that workplace stressors including working longer hours to keep up with high demands for productivity (Cartwright, 2000; Sparks, Faragher & Cooper, 2001), and the emotional labour of call centre work (Hyman, Baldry, Scholarios, & Bunzel, 2003) lead to job strain outcomes that affect non-job life, particularly social and familial roles, activities and responsibilities (e.g., Bruck, Allen & Spector, 2002; Kahn & Byosiere, 1990). For example, where workers report a high level of exhaustion from their job and a subsequently decreased investment of themselves in non-job life, low scores on measures of context-free psychological wellbeing are consistently found (e.g., Bruck et al., 2002; Frone, Russell, & Cooper, 1997). Two elements of context-free psychological wellbeing that have received much attention in the occupational stress literature are psychological distress and life satisfaction.

2.2.1.1. Psychological distress

Psychological distress is referred to in the literature as a state of mental health characterised by the presence of subjectively distressing symptoms relating to deficits of mood and affectivity (e.g., Goldberg, Gater, Sartorius, & Unstun, 1997; Goldberg &

Williams, 1988; Hardy, Woods & Wall, 2003). The extent of symptom experience of psychological distress is usually assessed in occupational research using the twelve-item version of the General Health Questionnaire (GHQ12; Goldberg & Williams, 1988; Payne, 2001).

Occupational studies using the GHQ12, have demonstrated significant positive associations between psychological distress and self-reported job stress (Sheffield, Dobbie, & Carroll, 1994), trait neuroticism (Creed, Muller, & Machin, 2001), and measures of state and trait anxiety, depression and negative affectivity (Payne, 2001; Payne, Wall, Borrill, & Carter, 1999). Psychological distress has also been strongly negatively associated with life satisfaction (e.g., Evans, 1986; Evans & Haworth, 1991; Hepworth, 1980), job satisfaction (e.g., Byrne & Reinhart, 1990) and absence frequency (Hardy et al., 2003). On the whole, there is a convergence of evidence in the literature that suggests psychological distress is a negative job strain outcome representative of poorer states of psychological wellbeing.

2.2.1.2. Life satisfaction

Life satisfaction refers to an individual's appraisal of their affective experience derived from their general life circumstance (e.g., Organ & Near, 1985; Judge & Watanabe, 1993). Veenhoven (1996) proposed that life satisfaction was derived from social comparison: more specifically, that life satisfaction is an appraisal of how life is, against social expectations for how it should be, relative to how it is for others. According to this theory, a smaller perceived discrepancy between social expectations and the reality of current circumstance should result in higher levels of life satisfaction.

Life satisfaction is generally assessed either by responses to one item asking about satisfaction with life as a whole (e.g., Warr, Cook, & Wall, 1979) or by the composite sum of satisfaction ratings for specific life facets, including abode, availability of money and the present Government (e.g., Evans, 1986; Evans & Haworth, 1991). Warr (1991)

advocated for the use of composite measures of life satisfaction, such as the eleven-item Total Life Satisfaction scale (TLS; Evans & Haworth, 1991) anticipating better construct representation in the appraisal of context-free psychological wellbeing than single item measures of overall life satisfaction.

Compared to satisfaction with other specific non-job factors, a stronger (albeit modest) relationship exists between general life satisfaction and job satisfaction (Near, Smith, Rice, & Hunt, 1984). From their meta-analysis Rain, Lane and Steiner (1991) reported a positive and reciprocal relationship between life and job satisfaction that generalised across a range of different organizational contexts, suggesting a consistent association independent of work context. While cross-sectional studies have reported a low positive association between life and job satisfaction (e.g., Adelmann, 1987; Lee & Ashforth, 1993), longitudinal evidence has indicated a low positive and reciprocal relationship between life and job satisfaction (Judge & Watanabe, 1993). The consensus of opinion in the literature appears to be that job satisfaction is a component of life satisfaction.

2.2.2 Job-Related Psychological Wellbeing

Job-related psychological wellbeing refers to the appraisal of affective experience attributed to the job. Consequently, the impact of specific workplace stressors is likely to be stronger for job-related rather than context-free psychological wellbeing (Warr, 1999). From his review of the literature, Warr (1999) concluded that the bulk of research investigating the influence of workplace stressors upon job-related psychological wellbeing supported a causal interpretation. Most studies investigating the influence of workplace stressors upon job-related psychological wellbeing examine job satisfaction as the primary outcome variable – independent of assessments of positive and negative affectivity (Agho, Price, & Mueller, 1992; Spector, 1997).

2.2.2.1. Job satisfaction

Job satisfaction is an internal evaluation of the extent to which the work environment fulfils the needs of the individual (Bizot & Goldman, 1993), manifesting in an affective orientation towards the job (Daniels, Brough, Guppy, Peters-Bean, & Weatherstone, 1997). Rather than a single-item assessing the overall affective orientation to the job, Warr (1991) recommended use of a multi-faceted composite scale assessing satisfaction with specific characteristics of the job, such as the Minnesota Satisfaction Questionnaire (MSQ; Weiss, Dawis, Lofquist, & Davis, 1967).

Job satisfaction has been reported as one of the most important considerations for organisational psychology due to its established associations with low job commitment (Carsten & Spector, 1987), lower organizational citizenship behaviour (Moorman, 1993), lower job performance (Bizot & Goldman, 1993; Iaffaldano & Muchinsky, 1985), higher absence frequency (Agho et al., 1992; Folkedal, Vaag, Halvari, & Svebak, 2000; Hackett, 1989; Hardy et al., 2003; Johns, 2002; Saal & Knight, 1988), higher turnover intent (Carsten & Spector, 1987; Michaels & Spector, 1982; Travers & Cooper, 1993), closer consideration of alternative employment (Connolly & Viswesvaran, 2000) and higher rates of turnover (Folkedal et al., 2000; Tsai, 2000). These findings suggest that low job satisfaction may be detrimental to the profitability of business operations by a function of employee withdrawal.

Acknowledging the implications of the above, researchers have investigated job design and other factors central to the administration of work roles to account for reported levels of job satisfaction. Subsequently, it has been acknowledged that safety and comfort within the physical workplace, role governance and workplace culture including supervisory support and co-worker relations are strong positive correlates of job satisfaction (Connolly & Viswesvaran, 2000; Landeweerd & Boumans, 1994; Michaels &

Spector, 1982). Indeed, low job satisfaction has been associated with low perceived control over the distribution of work tasks (Connolly & Viswesvaran, 2000), hours and shifts (Krausz, Sagie, & Bidermann, 2000), repetitious work routines (Agho et al., 1992), low clarity of performance expectations, low status and fewer opportunities for advancement (e.g., Travers & Cooper, 1993).

Considering the wellbeing of employees, studies have demonstrated that low job satisfaction is associated with more health complaints (Graetz, 1993), increased alcohol consumption (Taylor, Repetti, & Seeman, 1997), work-family conflict (Bruck, et al., 2002; Frone et al., 1997), lower self-efficacy (Judge & Bono, 2001), and psychological distress (Byrne & Reinhart, 1990; Hardy et al., 2003; Saal & Knight, 1988). Indeed, the experience of psychological distress has been reported as significantly greater among young adult workers indicating low job satisfaction than among their peers reporting higher levels of job satisfaction (Winefield, Tiggemann, & Winefield, 1991). The consensus of opinion in the literature is that job satisfaction is an important indicator of job-related psychological wellbeing.

2.3 Theoretical Explanations For Psychological Wellbeing At Work

Given the mental, physical and emotional demands of call work (reviewed in Chapter One), theoretical explanations accounting for the impact of situation-based demands upon psychological wellbeing were considered. In this section, two models accounting for the impact of elements of a work situation (i.e., situational elements) upon psychological wellbeing are reviewed. Following a presentation of the evidence pertaining to each model, their application to call centre operations is considered.

2.3.1 The Access To Categories Of Experience (ACE) Model

2.3.1.1 Work As A Social Institution

In defining her perspective that work is an important social institution that fulfilled a psychological need, Jahoda (1981, 1982) drew upon the work of several theorists, most notably Freud. An interpretation of the importance of working life given by Freud (1930/ 2002) suggested that work was a person's strongest tie to reality through its provision of a platform for developing and maintaining conformity of the 'self' to society according to socio-cultural expectations of moral behaviour. While Freud (1930/ 2002) emphasised a libidinal drive towards establishing and maintaining this tie, others have emphasised social conditioning as the primary motivation for a similar process (e.g., Sullivan, 1953). Embracing this theme, Jahoda (1981, 1982) developed her perspective that work provided an opportunity through which people established and maintained a social identity, derived purpose and social validation for their membership to society. Jahoda (1982) saw this process as critically important to establishing and maintaining optimal psychological wellbeing. She also considered that there was no other forum that could provide the social connection that work allowed.

Jahoda (1979, 1981, 1982) developed this perspective through direct observation of the social deprivation caused by unemployment. Drawing upon her observational studies of two villages in Europe that were essentially wholly unemployed during the Great Depression of the Twentieth Century, Jahoda (1979, 1982) and colleagues (e.g., Jahoda, Lazarsfeld & Zeisel, 1972) reported a detailed account of the negative psychological impact of unemployment highlighting hardships experienced through economic and social deprivation. Participation in the work schemes within these villages provided her confirmatory evidence to support her social deprivation analysis.

Commissioned by the State to produce food and other essential staples, these work schemes encouraged the participation of the unemployed residents within the community to 'work' on various projects to support the subsistence of their village. While there was little or no financial incentive towards involvement in the work schemes, Jahoda (1982) considered that people were drawn to the schemes by the prospect of social engagement that converged upon a collective purpose for the good of their community. She also considered that participants were better off in respect of psychological wellbeing, compared to those who did not participate and remained idle. For Jahoda (1982), this was evidence of a psychological benefit to involvement in work beyond financial gain. Developing this idea in the context of employment, Jahoda and Rush (1980, p. 12) proposed:

> Employment of whatever kind, and at whatever level makes the following categories of psychological experience inevitable: it imposes a time structure on the waking day; it compels contacts and shared experiences with others outside the nuclear family; it demonstrates that there are goals and purposes which are beyond the scope of an individual, but require a collectivity; it imposes status and social identity through the division of labour in modern employment and, last but not least, it enforces activity.

2.3.1.2 Latent functions of work

Imposing Merton's (1957) functional analysis paradigm around her ideas, Jahoda (1981) proposed that beyond the 'manifest' function of work[1] (earning a living) that compelled people to engage in employment, the 'latent' functions of work were the socially relevant, yet unintended consequences of fulfilling the daily work routine. The latent functions provided a social connection with colleagues and others met as part of the daily job routine, involvement in a collective purpose for the good of the community,

[1] Acknowledging that the meaning of "work" could include unpaid labour, it is used in this context to refer to paid employment.

perceived social worth through job status, and a time structure in which job activities would be completed. Defining the most salient aspects of the latent functions, Jahoda (1981) proposed five categories of experience important to psychological wellbeing (see Table 2.1).

Table 2.1: Categories of experience representing the latent functions of work

Category of Experience	Description of Category
Activity	A schedule of required activities during the day
Social Contact	Opportunities for social and interpersonal contact during the day
Collective Purpose	Opportunities to be a part of a collective effort, making a positive contribution to community with goals larger than oneself
Social Status	Perceived social standing, one's perceived social value
Time Structure	Having to be present and available at certain times, having to do things according to a prescribed time schedule during the day

According to Jahoda (1981), access to experiences within these categories was an unavoidable consequence of employment. Furthermore, as long as people were employed – regardless of job quality – then optimal psychological wellbeing would follow (Jahoda, 1982). Arising from this 'Access to Categories of Experience' (ACE) model (Jahoda, 1981), a 'deprivation' theory was proposed such that where an individual is deprived of optimal experience within the ACE categories, psychological wellbeing is adversely affected.

2.3.1.3 Evidence For The ACE Model

The ACE model and underlying deprivation theory has been examined in a variety of labour market contexts. Independent of labour market context, the consistent finding has been that where respondents report fewer experiences within the five categories, they also tend to report higher levels of psychological distress – assessed using the GHQ12 (Creed & Machin, 2003; Creed & Macintyre, 2001; Creed et al., 2001; Evans, 1986; Evans & Haworth, 1991; Haworth & Ducker, 1991; Henwood & Miles, 1987; Isaksson, 1990) and

lower levels of life satisfaction – assessed by the TLS (Evans, 1986; Evans & Banks, 1992; Evans & Haworth, 1991; Haworth & Ducker, 1991; Haworth & Paterson, 1995). In support of the Jahoda (1981) perspective, the evidence suggests that deprivation from ACE category experience is related to poorer states of context-free psychological wellbeing.

2.3.1.4 Relative associations of the ACE categories to psychological wellbeing

While the overall finding has been that less access to experiences within the ACE categories is associated with poorer states of psychological wellbeing, evidence for the relative importance of the individual ACE categories to indices of psychological wellbeing has varied. It is noteworthy that the bulk of this evidence comes from studies investigating unemployed samples.

In respect of bivariate associations between individual ACE categories and psychological distress among unemployed samples, the evidence is inconclusive. While one study reported all five ACE categories held significant and interpretable[2] negative bivariate associations with psychological distress (Creed & Machin, 2002), other studies have reported similar magnitudes of association for only four (Evans, 1986), three (Creed & Machin, 2003[3]; Haworth & Ducker, 1991) and one ACE category (Creed & Watson, 2003). From their employed sample, Haworth and Paterson (1995) found that only *Collective Purpose* held a significant and interpretable (negative) association with psychological distress.

In respect of bivariate associations between individual ACE categories and life satisfaction among unemployed samples, significant and interpretable positive associations were reported for three of the ACE categories (Evans, 1986; Haworth & Ducker, 1991). From their employed sample, Haworth and Paterson (1995) reported that both *Collective*

[2] Pearson bivariate correlations of less than .3 are considered to represent little if any relationship (Hinkle, Wiersma, & Jurs, 1988) and are therefore considered less reliably interpretable in small to moderate samples (<85) given the expectation of a medium size effect (Cohen, 1992), even where the criterion for statistical significance is met.

[3] Creed and Machin (2003) excluded *Time Structure* from this analysis.

Purpose and *Social Status* held significant and interpretable positive associations with life satisfaction.

Independent of labour market status, the common finding among these studies is that a significant negative bivariate association exists between *Collective Purpose* and psychological distress. While *Social Status* also appears to be related to psychological distress in several studies of unemployed populations, to-date there is no evidence for this association among the employed. That said, *Social Status* was found to hold meaningful bivariate (positive) associations with life satisfaction in both unemployed and employed populations. *Collective Purpose* has also emerged from studies of both unemployed and employed populations as positively related to life satisfaction, although the evidence for this association remains inconclusive. A tentative conclusion from the above evidence may be that lower access to experiences enabling a positive reflection upon one's contribution to a collective purpose and social standing is associated with lower levels of context-free psychological wellbeing. Further research investigating the relative associations between the ACE categories and psychological wellbeing among employed samples is indicated.

2.3.1.5 ACE model predictions of psychological wellbeing

One of the more poignant criticisms of the ACE model is that it is an explanation of the social benefits available in employment based upon the observation of situations defined by the absence of employment (Evans, 1986) and has not been validated for its explanation of psychological wellbeing in an employed context (Fryer, 1986). Despite this criticism two decades ago, the predictive validity of the ACE model in an employment context has not yet been reported.

Drawing upon the evidence from independent samples of unemployed people, the strength of the entire ACE model prediction of psychological distress has been reported as low as 5% (Creed et al., 2001) and as high as 35% (Creed & Macintyre, 2001). In respect

of the relative contributions of individual ACE categories to the entire ACE model prediction of psychological wellbeing among the employed, Creed and Macintyre (2001) found that *Social Status*, *Time Structure* and to a lesser extent *Collective Purpose* made significant unique contributions to the ACE model prediction of psychological distress, while Creed and Watson (2003) found that none of the individual ACE categories made significant unique contributions to the same prediction.

While the entire ACE model prediction for any index of psychological wellbeing has not been reported for employed samples, one study has investigated the relative contribution of individual ACE categories to the entire ACE model prediction of psychological wellbeing among employed people. Haworth and Paterson (1995) found that while *Collective Purpose* provided a significant unique contribution to the prediction of psychological distress, *Social Status* provided the only significant unique contribution to the prediction of life satisfaction. While these findings suggest that the individual ACE categories are differentially related to different indices of psychological wellbeing, they should be considered within the context of methodological limitations in the study, including the small size of the sample used (N = 28).

On the whole, evidence for the validity of the ACE model in predicting psychological wellbeing is scarce and inconclusive. While there is evidence to suggest its applicability to unemployed samples, further research is needed to determine the validity of the ACE model in predicting psychological wellbeing among the employed.

2.3.1.6 Criticisms of the ACE model

The ACE model has also been criticised for the underlying assumptions that engaging in work guarantees optimal levels of ACE category experience and that the quality of these experiences at work is irrelevant (Evans, 1986; Fryer, 1986). Jahoda (1981) asserted that "…time structures can be too rigid, contact with supervisors

unpleasant, the purposes unclear or unacceptable, the status too low and the activity boring and exhausting" (Jahoda, 1981, p.189) and yet access to the ACE categories will be achieved and the socially embedded psychological need will be met (Jahoda, 1992). Despite this underlying assumption of the model, there is some evidence to the contrary of this position. For example, studies have found similar levels of experience within certain ACE categories between samples of unemployed and employed.

Evans and Banks (1992) found no difference between unemployed and employed samples in respect of *Social Status* – the primary correlate of psychological distress found in the literature. While this finding was interpreted as an indication that unemployment was more socially acceptable among the cohort investigated, it may also have been the case that the employed group experienced lower levels of social standing owing to limitations in occupational prestige available in their work.

Following their lack of success in using levels of ACE category experience to differentiate between labour market states (unemployment, full-time education and employment) on levels of psychological distress, Miles and Howard (1984) suggested that in some cases "…a job may fail to provide these [ACE] experiences…" (p. 23) resulting in similar levels of psychological wellbeing reported among those with and without employment. Winefield, Tiggemann and Winefield (1993) reported no difference in levels of psychological distress between those school leavers who were engaged in jobs they reported as unsatisfying and those who were unemployed. It seems plausible that different jobs may provide different qualities of ACE category experience, thereby undermining Jahoda's (1992) position that employment guaranteed optimal ACE category experience and subsequently, optimal psychological wellbeing.

Ezzy (1993) directly challenged the notion that employment guaranteed optimal experience of the ACE categories, suggesting employment that is isolating, arduous, and

unpleasant, was not very likely to provide favourable 'ties to reality' alluded to in the ACE model formulation (Jahoda, 1981). Ezzy (1993) further asserted this perspective, stating it was a "…highly dubious proposition that the conditions of employment characteristic of modern capitalistic society should be universally conducive to positive psychological wellbeing." (p. 45). It is more likely that fulfilling the socially embedded "…psychological need…" (Jahoda, 1992, p. 356) is dependent upon the quality of ACE category experiences provided within the job. Feather and Bond (1983) concur, suggesting that the latent consequences of employment may "…vary in their quality depending upon the specific characteristics of the job" (p.243).

Anticipating how this would affect the underlying rationale for the ACE model, Jahoda (1982) also specified that the "…quality of these [employment] experiences may present psychological burdens of its own kind." (p. 62). This specification was subsequently criticised because it effectively insulated the ACE model from empirical falsification (e.g., Fryer, 1986), since employed people can have adequate access to the ACE categories of experience yet have lower levels of psychological wellbeing attributed to unsatisfactory employment. Upon lamenting this situation, Fryer (1995) concluded that the ACE model "…fits uneasily with…literature on the negative psychological impact of employment…" (p. 270). The validity for the ACE model prediction of psychological wellbeing among employed samples, taking into consideration the quality of situational elements of a work role is not known.

2.3.1.7 Access to Categories of Experience during call centre operations

Reflecting upon the description of the call centre operator work role provided in Chapter One, it is evident that certain ACE category experiences may be restricted, or of poor quality. While there is an abundance of access to experiences pertaining to a prescribed daily task routine (*Activity*) and a time-dependent structure for attendance and

call availability (*Time Structure*), experiences of other ACE categories may be restricted. For example, access to experiences of *Social Contact* during the day is likely to be limited by the demand for availability and the individualised nature of the work, which may also limit opportunities for involvement in a *Collective Purpose*. Further, the simplified nature of each service episode and the repetitive and monotonous task routine, are likely to reduce the perception of occupational prestige suggesting that limitations in experiences pertaining to *Social Status* are likely. As per the deprivation theory, deficits in experience of these ACE categories may be associated with lower levels of psychological wellbeing among call centre operators.

2.3.2 The Principal Environmental Influences (PEI) Model

Another model proposed to examine situational elements of a work role is the Principal Environmental Influences (PEI) model (Warr, 1987). Upon reviewing the evidence for environmental elements commonly related to psychological functioning across various states of labour market participation, Warr (1987) converged upon nine 'Principal Environmental Influences' (see Table 2.1).

In the PEI model, Warr (1987) included financial mobility (*Money*) and perceived security (*Physical Security*) to indicate the integrity of the environmental context, social reference factors (*Valued Social Position, Opportunities for Interpersonal Contact*) derived from the ACE model (Jahoda, 1981, 1982), situation-specific content variables (*Opportunities for Control, Environmental Clarity, Opportunities for Skill Use* and *Variety*) related to the job scope components of the Job Characteristics model (e.g., Hackman & Oldham, 1976, 1980; Xie & Johns, 1995), and a review of situational demands (*Externally Generated Goals*) and the experience of autonomy (*Opportunities for Control*)

Table 2.2: Description of the Principal Environmental Influences

Principal Environmental Influences	Description
Money	Availability of money – perceived adequacy of current financial position, in light of financial support of social activity.
Physical Security	Absence of danger, overall perception of safety and security within the environment. Physical aspects of the environment that may detract from task focus (e.g., temperature, lighting, noise).
Valued Social Position	Wider perception of social standing; occupational prestige; perceived contribution to community; personal meaningfulness of a job. Relates to the ACE categories *Social Status* and *Collective Purpose*.
Externally Generated Goals	Perceived quantitative and qualitative demands. Also, the experience of goals toward completion of prescribed activity, according to a pre-determined goal orientation generated by external agents. Relates to ACE categories *Activity* and *Time Structure*.
Environmental Clarity	Knowledge of the consequences of actions. Knowledge of personal influence in a specific environmental context (e.g., work), how one may meet social and performance expectations within this context.
Opportunities for Control	Personal control over the order and process of daily routine. Decision latitude and autonomy within a specific environmental context (e.g., work).
Opportunities for Skill Use	Opportunities for the use and extension of existing skills.
Variety	Diversity within the daily routine, opportunities for new or different experiences per day (e.g., breadth of skills required for work schedule).
Opportunities for Interpersonal Contact	Frequency and quality of interpersonal interactions with others, opportunities for social contact. Relates to the ACE category *Social Contact*.

Note. These descriptions were adapted from Warr (1987, p.282).

examined in the Job Demand/Control model (Karasek, 1979). Incorporating the core elements of several research programs, the PEI model was specifically designed to "…go beyond other approaches…" (Warr, 1994, p. 94) by covering a broader scope of situational elements empirically related to psychological wellbeing. Anticipating concerns over the number of variables in the PEI model, Warr (1987) asserted that fewer categories would result in less differentiation of situational elements and a model that would fail to adequately indicate areas required for change, to enhance psychological wellbeing. Indeed, Ezzy (1993) viewed the breadth of coverage of the PEI model as a particular strength, particularly in light of its orientation toward intervention, and its flexibility in application to a range of labour market contexts (unemployment, underemployment, retirement). The

indication from the literature is that the PEI model should be a better predictor of psychological wellbeing than the ACE model (e.g., Ezzy, 1993; Warr, 1987).

Operationally, the PEI model holds that optimal experience of the PEIs would enable optimal psychological wellbeing. Connecting the PEI model to empirical examination, Warr (1987) theorised that in low levels psychological wellbeing is adversely affected, while at moderate levels psychological wellbeing should remain optimal. However, at high levels, some PEIs continue to enhance (albeit marginally) psychological wellbeing (e.g., *Money*, *Physical Security* & *Valued Social Position*), whereas other PEIs would adversely impact psychological wellbeing (*Externally Generated Goals*, *Environmental Clarity*, *Opportunities for Control*, *Opportunities for Skill Use*, *Opportunities for Interpersonal Contact* and *Variety*). For example, where there are too many demands (i.e., very high levels of *Externally Generated Goals*) in a given situation decrements in psychological wellbeing are likely. Thus, theoretically there are linear and curvilinear hypotheses that may be tested to determine the impact of the PEIs upon psychological wellbeing.

2.3.2.1 Evidence For The PEIs

Few studies have directly evaluated the PEI model, in any labour market context. Only three studies have investigated the PEI model in its entirety, and none of these tested the model using samples of call centre operators. In this section, a blend of direct and indirect evidence is explored to examine the basis for an association between each PEI and psychological wellbeing, with reference to the call centre operator work role. Finally, direct evidence for the validity of the entire PEI model as a predictor of psychological wellbeing is presented.

To facilitate an order to this discussion, the PEIs are explored in four thematic groups. *Money* and *Physical Security* were considered measures of ‘Environmental

Integrity', whereas *Valued Social Position* and *Opportunities for Interpersonal Contact* were considered indicators of 'Social Reference' (e.g., Jahoda, 1981). Consistent with the composite variable endorsed by Xie and Johns (1995), *Opportunities for Control*, *Environmental Clarity*, *Opportunities for Skill Use* and *Variety* were considered to relate to 'Job Scope'. The PEI *Externally Generated Goals* was considered representative of Job Demands (e.g., Warr, 1987).

2.3.2.2 Environmental Integrity

2.3.2.2.1. Money.

Warr (1987) asserted that the availability of money was important to mental health and that the available evidence supported a linear relationship between these two variables (Warr, 1994). In his theory of personal agency, Fryer (1986, 1995) proposed that an optimal availability of money was important to mental health because it enabled active engagement in personal goals, novel experiences, social activities and plans for the future. The consensus from the unemployment literature is that low availability of money is associated with various measures of psychological wellbeing, including higher levels of psychological distress (e.g., Creed & Machin, 2002; Creed & Macintyre, 2001; Creed et al., 2001), and lower reported levels of life satisfaction (e.g., Haworth & Ducker, 1991).

The evidence from employed samples is less conclusive. While Adelmann (1987) found income to be a marginally significant predictor of a global measure of life satisfaction, perceived self-confidence and vulnerability, more direct evidence from investigations of the PEI model have found the availability of money to be positively predictive of life satisfaction, albeit in a small sample (N = 18) of female clerical workers (Haworth, Jarman, & Lee, 1997). On the other hand, Haworth and Paterson (1995) reported no association between the availability of money and either psychological distress or life satisfaction in a small sample of managers (N = 28).

In a more adequately sized sample however, Bryce and Haworth (2003) reported that the availability of money made a unique contribution to the PEI model prediction of life satisfaction (assessed using the TLS) for male but not female office workers – findings consistent with the between-gender analysis also given in Adelmann (1987). Bryce and Haworth (2003) also found that the availability of money was significantly predictive of job satisfaction for both males and females. Whilst somewhat inconclusive, the available evidence suggests that the PEI *Money* may not be associated with psychological distress, yet may have a positive linear association with life satisfaction and job satisfaction.

2.3.2.2.2 Physical security.

Warr (1987) contended that people needed to feel safe and secure – protected from physical threat within their environment. Further, he considered that working conditions, such as temperature, noise and lighting were important to maintain the physical integrity of the worker. While Warr (1994) admits that *Physical Security* may relate more strongly to psychological wellbeing in an industrial 'blue collar' employment context, the evidence reviewed in Chapter One suggests that call centre operators may also experience problems relating to their physical functioning. More specifically, the physical health of call centre operators may be negatively influenced by their extensive VDT exposure, including an increased incidence of musculoskeletal (e.g., Bramwell & Cooper, 1995; Hanse, 2002; Sawyer et al., 2002; Taylor et al., 2003), vision (Bramwell & Cooper, 1995; Taylor et al., 2003), hearing (Hurt, 2002; Taylor et al., 2003) and voice disorders (Duignan, 2003; Taylor et al., 2003). In respect of safety however, few problems are likely, given the physical design of workstations (e.g., Smith & Bayehi, 2003) and the absence of *in vivo* contact with customers.

In the three studies that have directly examined the PEI model, *Physical Security* was not significantly associated with any of several indicators of psychological wellbeing

in the samples of managers (Haworth & Paterson, 1995), office clerks (Haworth et al., 1997) or insurance sales and support personnel (Bryce & Haworth, 2003). However, there is evidence to suggest high VDT exposure in the call centre may be associated with poorer states of psychological wellbeing (e.g., Bramwell & Cooper, 1995; Sawyer et al., 2002; Taylor et al., 2003). Therefore, it is plausible that *Physical Security* may be associated with psychological wellbeing in this context.

2.3.2.3 Social Reference

2.3.2.3.1 Valued social position.

Building on Jahoda's (1981, 1982, 1992) formulation, Warr (1987) also emphasised the importance of work in fulfilling a "…socio-emotional need" (Warr, 1987, p. 177). He considered that mental health would be adversely affected where job tasks lacked personal significance, where the job was considered low in status relative to the worker's perception of how others value the work role and where workers perceived a low contribution to a collective purpose (for a review see Warr, 1987).

In the call centre, the opportunity to make personally significant contributions to the customer service interactions may potentially be compromised by the push for call volume and the simplified, short-cycling nature of customer service interactions. Social comparison with other jobs with longer and more meaningful social transactions (e.g., a Psychologist), greater diversity and perceived social importance (e.g., a Medical Practitioner) and the social appraisal of call centres as modern-day sweatshop; (e.g., Cartwright, 2000) are likely to result in a low rating of job status. Indeed, from the studies reviewed in Chapter One, it is evident that call centre operators considered their work role held few intrinsically valuable components – that it was not a 'complete' work role (e.g., Callaghan & Thompson, 2002), merely a 'stepping stone' to a career (e.g., Russell, 2002) and something they could not do for very long (Kleemann & Matuschek, 2002). Finally,

despite the team structures found in most call centres (ACA Research, 1998; Taylor & Bain, 1999), limited perceived involvement in a collective purpose is likely given the demand for availability (e.g., Knights & McCabe, 2003) and the individualised nature of the work (e.g., Mulholland, 2002). Therefore, levels of *Valued Social Position* are likely to be low within this employed population.

Given the paucity of research investigating the PEI model, a review of evidence for the association between low levels of *Valued Social Position* and psychological wellbeing should include indirect evidence from the ACE scales upon which this PEI is based, namely *Social Status* and *Collective Purpose*. Recall that independent of labour market context, both these variables were reported as linearly predictive of psychological distress (e.g., Creed & Macintyre, 2001) and life satisfaction (e.g., Haworth & Paterson, 1995), although the evidence for employed samples remains inconclusive.

In respect of studies directly investigating the PEI model among employed samples, Haworth and Paterson (1995) reported that *Valued Social Position*[4] provided a unique, significant contribution to the PEI model prediction of psychological distress and life satisfaction. While significant and meaningful positive bivariate associations were found with life satisfaction, *Valued Social Position* failed to provide a significant unique contribution to the PEI model prediction of life satisfaction in two subsequent studies (Bryce & Haworth, 2003; Haworth et al., 1997). Addressing the methodological problems with small sample sizes from the previous two PEI studies, Bryce and Haworth (2003) reported that lower reported levels of *Valued Social Position* provided significant unique contributions to the PEI model predictions of higher job related anxiety, job-related depression and lower job satisfaction. Overall, given the call centre context, the available

[4] Haworth and Paterson (1995) included an additional item in their assessment of *Valued Social Position* to reflect the dependence of others on the availability of the individual worker. This item was excluded in subsequent PEI studies, namely Haworth et al. (1997) and Bryce and Haworth (2003).

evidence suggests the perception of a low *Valued Social Position* is likely to be predictive of lower context-free and job-related psychological wellbeing.

2.3.2.3.2 Opportunities for interpersonal contact.

The intensity of call work, extensive monitoring practices (e.g., Taylor & Bain, 1999; Van den Broek, 2002), physical design of workstations (e.g., Bagnara & Marti, 1998) and the demand for availability (Knights & McCabe, 2003; Mulholland, 2002; Taylor & Bain, 1999; Taylor et al., 2003) restrict opportunities for social contact with work colleagues and others met as part of the job. Furthermore, the intensity of work demands and the constant emphasis upon an individual's responsibility for their performance has led to a breakdown of teamwork (Knights & McCabe, 2003; Korczynski, 2002) forcing operators to focus on their own performance in a mode of self-preservation, blocking out distractions from colleagues in a bid to maintain difficult performance levels (Mulholland, 2002). Consequently, opportunities for interpersonal contact at work in the call centre are restricted.

While *Opportunities for Interpersonal Contact* has not been meaningfully associated with psychological wellbeing in the three studies directly assessing this component within the PEI model, indirect evidence suggests that fewer opportunities for interpersonal contact may be detrimental to psychological wellbeing. For example, Taylor et al. (2003) found that call handlers (operators) reported a greater perceived pressure from their job compared to non-call handlers in the call centre, when they reported few opportunities to talk with their work colleagues. Evidence from investigations of the ACE scale *Social Contact* (upon which this PEI is based) suggests that this PEI may have significant bivariate associations with psychological distress (Creed & Machin, 2002; Creed & Machin, 2003) and life satisfaction (Evans, 1986; Evans & Haworth, 1991).

However, the available evidence does not support a unique contribution by *Opportunities for Interpersonal Contact* to the PEI model prediction of psychological wellbeing.

2.3.2.4 Job Demands

2.3.2.4.1 Externally generated goals.

In an employment context, *Externally Generated Goals* refers to the quantitative and qualitative outcomes required from the work routine, driving work task processes according to time-dependent deadlines. As Warr (1987) observed "…having too much work to do in a limited time is…liable to have negative psychological consequences." (p.119). Indeed, high job demands are related to heightened physiological activation. Increased adrenocortical arousal, systolic blood pressure and heart rate have been reported under conditions of higher time-dependent performance demands both in the laboratory (e.g., Frankenhauser & Johansson, 1976) and in the workplace (e.g., Warr, 1987).

Other research has found high job demands associated with higher levels of strain, anxiety and depression (Caplan & Jones, 1975; Cooper et al., 2001), self-reported tension (Dewe, 1991), psychological distress (Calnan et al., 2001), emotional exhaustion (Deery et al., 2002; Lee & Ashforth, 1993), lower levels of job satisfaction (Hurrell & McLaney, 1989; Macdonald, 2003) and poorer job performance (Cooper et al., 2001). While these studies provide indirect evidence to suggest a significant negative (linear) association between high levels of *Externally Generated Goals* and psychological wellbeing, Haworth et al. (1997) reported a significant and meaningful positive (linear) bivariate association between *Externally Generated Goals* and life satisfaction – which may have been an indication of low to moderate perception of job demands. There remains no other direct evidence of linear bivariate associations between this PEI and other indicators of context-free or job related psychological wellbeing.

Investigating the possibility of non-linear associations with several indicators of psychological wellbeing, Bryce and Haworth (2003) found that *Externally Generated Goals* held significant non-linear associations in prediction of job-related anxiety for their male sample and job satisfaction for their female sample. Consistent with the curvilinear hypothesis where increasingly high demands would result in a deterioration of psychological wellbeing, these authors found the non-linear (quadratic) models provided a significantly better fit than the linear models in both of these predictions.

Despite this finding, other studies have been unable to find support for the hypothesised curvilinear relationship between job demands and psychological wellbeing (e.g., Boswell, Olson-Buchanan & LePine, 2004; De Jonge & Schaufeli, 1998; Parkes, 1991). Indeed, De Jonge and Schaufeli (1998) reported a modest yet significant negative linear association between job demands and job satisfaction, suggesting that the majority of health care providers investigated encountered a restricted range of job demands, restricted to high levels of this variable.

Given the push for call volume and the finding that time pressure for work completion creates an increased perception of quantitative demand (Narayanan, Menon & Spector, 1999), it is anticipated that similar to the health care providers in the study by De Jonge and Schaufeli (1998) call centre operators would also report high job demands and therefore higher levels of *Externally Generated Goals*. The restricted range of experience at high levels of job demands might also be negatively and linearly associated with low levels of context-free and job-related psychological wellbeing.

2.3.2.5 Job Scope

2.3.2.5.1 Environmental clarity.

Environmental clarity is the degree to which the environment is experienced as clear and comprehensible, where actions are known to lead to particular outcomes (Warr,

1987). In an employment context, this PEI reflects the extent to which the work process is systematic and predictable, and the clarity of procedural knowledge for how to achieve performance expectations (Bryce & Haworth, 2003). In the call centre, the simplified nature of the work provides a systematic and predictable work routine.

Although the work process is clearly specified, conflicting expectations are likely to confound procedural knowledge for how to achieve performance benchmarks, thereby reducing the clarity of expectations within the call centre environment. Recall from Chapter One that mutually incompatible performance expectations of increasing call volume and better call service quality have led to substantial role conflict (De Ruyter et al., 2001), which has been associated with increased perceptions of workload pressure (Mulholland, 2002). Elsewhere, high levels of role conflict have been associated with higher levels of emotional exhaustion (Jackson et al., 1986; Leiter & Maslach, 1988; Schwab & Iwanicki, 1982), greater experience of negative affectivity, job-related anxiety and lower levels of job satisfaction (e.g., Spector & O'Connell, 1994). Further, work role conflict has been reported as uniquely predictive of depressive symptomatology and lower job satisfaction (Sargent & Terry, 1998).

In addition to work role conflict, greater ambiguity for the process of meeting performance expectations has also been reported with significant and meaningful bivariate associations with higher levels of tension (Dewe, 1991), more symptoms of anxiety and depression (e.g., Sevastos, Smith, & Cordery, 1992; Tetrick & LaRocco, 1987), lower levels of job satisfaction and higher job-related anxiety (e.g., Spector & O'Connell, 1994; Tetrick & LaRocco, 1987). In work situations reported as high in role conflict and role ambiguity, workers have reported feeling less capable of meeting job demands and tended to report lower levels of job satisfaction and lower levels of job performance (Fried, Ben-David, Tiegs, Avital, & Yeverechyahu, 1998; Varca & James-Valutis, 1993). As a

contributing factor to role ambiguity, Landeweerd and Boumans (1994) found that while low quality of supervisory feedback was uniquely predictive of low job satisfaction, it was also associated with an increased perception of work pressure, more health complaints and higher absence frequency.

Operator disposition and enquiry characteristics are also likely to influence procedural knowledge for how to meet performance expectations within the call centre. Recall from Chapter One that cognitive fatigue (e.g., Cohen, 1978, 1980; Cohen & Spacapan, 1978; Zapf, Isic, Bechtoldt, & Blau, 2003; Zijlstra et al., 1999), variance in levels of physiological activation (e.g., Anderson & Revelle, 1994; Smith, 1995; Smith et al., 1991), variance in call characteristics such as information access sequencing (e.g., Whalen et al., 2002), the emotional disposition of customers (ACA Research, 1998; Dormann & Zijlstra, 2003; Korczynski, 2002; Sczesny & Stahlberg, 2000; Taylor & Bain, 1999), customer accents, call preparedness, pace and clarity of problem articulation may extend call durations unpredictably, thereby reducing certainty of being able to process enough calls within the shift to meet the expectations of call volume.

Direct investigations of the entire PEI model have reported significant positive bivariate associations between *Environmental Clarity* and life satisfaction (e.g., Haworth et al., 1997), job satisfaction, job-related anxiety and job-related depression (Bryce & Haworth, 2003; Haworth et al., 1997). Despite bivariate associations with several indicators of psychological wellbeing, *Environmental Clarity* has provided few unique contributions to the PEI model predictions of these indicators of psychological wellbeing. While Haworth and Paterson (1995) reported no unique contributions to the PEI model prediction of psychological wellbeing, both Haworth et al. (1997) and Bryce and Haworth (2003) reported a unique contribution to the PEI model prediction of life satisfaction and job-related depression. Haworth et al. (1997) also found a unique contribution in the PEI

prediction of a composite measure of affective wellbeing. The available evidence suggests that call centre operators may report lower levels of *Environmental Clarity* and that this PEI may be uniquely associated with psychological wellbeing.

2.3.2.5.2 Opportunities for control.

Opportunities for Control specifically refers to the level of autonomy, decision latitude and personal control over the order and process of work tasks. In proposing this PEI, Warr (1987) asserted that the perception of control was the "foundation of mental health" (p.4) both because it provided a sense of being able to influence a situation to meet social or performance expectations and because other PEIs were to some extent dependent upon the extent of control available within the environment. While perceived control in an employment context may be influenced by the clarity of performance expectations and the scope of activity within a work role (e.g., diversity of tasks requiring mastery, opportunities for social reference), it may also influence the perceived extent of job demands (e.g., Warr, 1987).

The call centre operator work role was specifically designed to reduce operator control over the work routine, providing instead a high level of external (managerial) control over call handling. As a result, comparisons with other work roles (service and non-service roles) have found that call centre jobs hold significantly lower task discretion, timing control (influence over work pace and schedule) and involvement in planning team activities (e.g., Grebner et al., 2003; Zapf et al., 2003).

Laboratory studies have shown that low perceived control is associated with an increase in catecholaminergic arousal (e.g., Steptoe, 1989). Where this is sustained, such as under work conditions of high demand and low control (analogous to call centre operations), a continuous heightened state of arousal has been found to contribute to decreased immunological competence (Frankenhauser & Gardell, 1976) and malignant

cancer (Fisher, 1989). Under high task demands, low perceived control at work has also been associated with an increased risk of coronary heart disease (Karasek, 1989). In respect of psychological wellbeing, lower perceived control at work has been associated with lower self-esteem and social integration (Pugliesi, 1995), lower reported life satisfaction, higher levels of depressive cognitions (Karasek, 1979), higher levels of emotional exhaustion (Krausz et al., 2000), higher context-free (Payne & Fletcher, 1983) and job-related anxiety (Spector & O'Connell, 1994), job-related depression (Sargent & Terry, 1998), and lower job satisfaction (Hurrell & McLaney, 1989; Krausz et al., 2000; Spector, Fox, & Van Katwyk, 1999; Spector & O'Connell, 1994; Tetrick & LaRocco, 1987). In addition to low job satisfaction, less control over the work schedule (total number of hours, choice of shifts and days of work) was also found to be strongly associated with lower commitment to the job, especially where workers reported a preference to work fewer hours (Krausz et al., 2000). The common finding in the literature is that low perceived control at work is associated with lower reported levels of context-free and job-related psychological wellbeing.

Reviewing the direct evidence for the PEI model, Haworth et al. (1997) reported that low levels of *Opportunities for Control* were predictive of low levels of overall life satisfaction in their small sample of female clerical workers. While Bryce and Haworth (2003) reported significant and interpretable bivariate associations between *Opportunities for Control* and several measures of job-related psychological wellbeing for both their male and female samples, unique contributions from *Opportunities for Control* to the PEI model prediction of these measures were only found for their male sample. Investigating this apparent gender difference further, Bryce and Haworth (2003) presented a path analysis from *Opportunities for Control* to job-related depression using the data from their female sample, finding this relationship to be mediated by PEIs relating to Job Scope, Job

demands and Social Reference, consistent with Warr's (1987) suggestion that these PEIs were interrelated in their association with psychological wellbeing.

The available evidence suggests that lower reported levels of *Opportunities for Control* are likely to be found among call centre operators and that this finding might be related to lower reported levels of psychological wellbeing. The contribution from *Opportunities for Control* to the entire PEI model prediction of psychological wellbeing may also be mediated through other job-related PEIs.

2.3.2.5.3 Opportunities for skill use.

This PEI refers to opportunities for the use of existing skills and the extension of these skills through learning and development. Recall from Chapter One that call centre operators work within a prescribed information space handling similar customer service episodes (e.g., Taylor & Bain, 1999; Whalen et al., 2002), and that call procedures were specifically designed to minimise complexity and duration of calls to facilitate a faster, short-cycling throughput of enquiries (Taylor & Bain, 1999; Taylor et al., 2003). Given this 'mass' service business priority (Grebner et al., 2003), few opportunities are available for an extension of skills beyond those required for the job (e.g., Russell. 2002; Taylor & Bain, 1999) and little attention is paid to career development (e.g., Deery et al., 2002; Kleemann & Matuschek, 2002; Russell, 2002). Indeed, call centre managers have reported concern over the mobility of their workforce given the limited career pathways available, an artefact of the 'flat' hierarchy[5] of the call centre (Taylor & Bain, 1999). Call centre operators are likely to report few *Opportunities for Skill Use*.

Significant and meaningful bivariate relationships are commonly reported between lower levels of skill utilisation and lower reported self-assurance (Arnold, 1994), higher levels of emotional exhaustion (Xie & Johns, 1995), higher levels of job-related anxiety

[5] Team leaders comprise only 10% of call centre staff – the only promotion available to operators (Callaghan & Thompson, 2002).

(Sevastos et al., 1992; Xie & Johns, 1995), higher levels of depressive symptomatology (Sevastos et al., 1992) and lower job satisfaction (Campion & McClelland, 1993; O'Brien, 1982a, 1983). Furthermore, low skill utilisation has been reported as significantly predictive of higher job-related depression, lower work role breadth self-efficacy, and lower job satisfaction (O'Brien, 1982b; Parker, 2003; Sargent & Terry, 1998).

In respect of skill development, where workers reported a connection between job demands and the potential for an increase in their skills base they showed an increase in work task application and commitment to the organisation (Boswell et al., 2004). Further, Morrison, Upton and Cordery (1999) found that where industrial workers reported a greater level of skill utilisation, the relationship between perceived control and work satisfaction was stronger. In three independent samples of call centre operators from a bank in the UK, Holman and Wall (2002) found that the extent to which employees perceived that their job provided opportunities for the use and extension of their existing skills moderated the relationship between perceived control and levels of depressive symptomatology. Moreover, these authors found that learning new skills reduced strain, strain inhibited learning and perceived control was an important precursor to both these relationships. Limited promotional opportunities also made significant contributions to the prediction of emotional exhaustion among Australian call centre operators (Deery et al., 2002). Therefore, fewer opportunities for the use and extension of existing skills might be related to the psychological wellbeing of call centre operators.

2.3.2.5.4 Variety.

This PEI specifically refers to the breadth and diversity of experiences within the environment. Call centre operators work within a narrow information space and must adhere to a simplified repetitive routine where call handling is often restricted to scripts detailing what to say to customers to progress through call enquiries. Grebner et al (2003)

compared call centre operators to non-call centre workers and found that call centre operators reported significantly lower levels of task variety and complexity. The limited diversity of experience in the daily routine suggests that operators are likely to report low levels of *Variety*.

Significant and meaningful linear bivariate associations have been reported between low levels of task variety and higher reported levels of job-related anxiety, depression (Sevastos et al., 1992) and job satisfaction (e.g., Warr, 1987). In the call centre, low levels of task variety have been associated with low scores on a global measure of psychosocial wellbeing, lower organisation commitment (Baumgartner, Good, & Udris, 2002[6]: cited in Grebner et al., 2003) and emotional exhaustion (Deery et al., 2002).

The few direct investigations of the PEI model have reported significant unique contributions from *Variety* to the PEI model prediction of psychological wellbeing. Although Haworth et al (1997) failed to find an association between *Variety* and psychological wellbeing, Haworth and Paterson (1995) reported that low levels of *Variety* were uniquely predictive of the pleasure and enjoyment felt for life as a whole (Haworth & Paterson, 1995). In addition, Bryce and Haworth (2003) reported unique contributions from *Variety* to the PEI model prediction of pleasure within the work environment and job satisfaction. While scant and inconclusive, the available evidence suggests that call centre operators would experience low levels of *Variety* and this might be related to psychological wellbeing.

2.3.2.6 Evidence for Entire PEI Model Predictions of Psychological Wellbeing

The entire PEI model has been reported as explaining 27% and 33% of the variance in job-related anxiety and depression (respectively), 10% of the variance in life satisfaction and 46% of the variance in job satisfaction for the female sample (Bryce & Haworth,

[6] The original work was published in Swiss-German.

2003). By contrast, the PEI model explained 37% and 53% of the variance in job-related anxiety and depression (respectively), 34% of the variance in life satisfaction and 57% of the variance associated with job satisfaction in the male sample (Bryce & Haworth, 2003). The available evidence suggests the PEI model is significantly predictive of psychological wellbeing.

2.4 The Present Study

2.4.1 Overview

The New Labour Market has led to work roles specifically designed to suit a business policy of economic rationalism. Owing to the expense of providing face-to-face customer service to consumers, there has been a shift in the modality of customer service delivery that has developed the call centre industry. It has been argued that the call centre operator work role was specifically designed in accordance with the principles of economic rationalism, and more specifically 'Neo-Taylorist' production-line operations. The simplification of call work has led to an intensification of quantitative demands and a restricted range of experience within the call centre operator work role. It has also been argued that the nature of call work leads to mental, physical and emotional demands that exceed energetic resources, leading to the experience of these demands as stressors and increasing the vulnerability of operators to job strain outcomes, including poorer psychological wellbeing. Given that high rates of absenteeism and turnover threaten the financial viability of call centre business, an investigation into the psychological wellbeing of operators is pertinent. The present study was initiated to investigate levels of psychological wellbeing among call centre operators as a function of situational elements encountered within the call centre operator work role.

2.4.2 Aims Of The Present Study

The primary aim of the present study was to compare the validity of two situational elements models in predicting psychological wellbeing in Australian call centre operators. By examining elements of experience within the call centre operator work role, the present study aims to identify 'problem' elements associated with poorer psychological wellbeing and subsequently, to develop recommendations for an intervention to reduce these problem elements. To increase the power of influence, the present study aimed to replicate the findings between two samples of call centre operators. From a review of the findings of sample one (data and anecdotal evidence) and review of the relevant literature, a secondary aim of the present study was developed. The secondary aim of the present study was to investigate factors associated with job satisfaction, such as a preference to work fewer hours than the current schedule and the extent to which job satisfaction is associated with job commitment, providing a nexus between the job stressor – job strain link and withdrawal behaviour.

2.4.3 Hypotheses

In keeping with the primary aim of the present study, hypotheses one through four were developed in accordance with the specific intent of replication. Hypotheses five and six correspond to the secondary aim of the present study, and were examined in sample two only.

Hypothesis 1: Call centre operators will report low levels of psychological wellbeing compared to normative data from other work roles.

Owing to the mental, physical and emotional demands and possible restriction of key environmental elements within the call centre operator work role, operators were expected to encounter lower states of psychological wellbeing than employees in other work roles. More specifically, compared to the normative data from other employed

samples, reported levels of job and life satisfaction were expected to be lower and levels of psychological distress were expected be higher, on average.

Hypothesis 2: The ACE model will be predictive of psychological wellbeing

Given the mixed evidence of previous studies, further exploration is needed into the relative contributions of each category to the ACE model prediction of psychological wellbeing. However, the available evidence suggests the entire ACE model will be significantly predictive of psychological distress, life and job satisfaction.

Hypothesis 3: The PEI model will be predictive of psychological wellbeing

Given the lack of comparable data for call centre operators, further exploration is needed as to the relative contributions for each PEI domain in the PEI model prediction of psychological wellbeing. However, the available evidence suggests that the entire PEI model will be significantly predictive of variance in reported levels of psychological distress, life and job satisfaction.

Hypothesis 4: Compared to ACE, the PEI model will be a better predictor of psychological wellbeing

Owing to the closer inspection of specific characteristics of the work role, it is expected that compared to ACE, the PEI model will explain a consistently larger proportion of variance in reported levels of psychological distress, life and job satisfaction.

Hypothesis 5: Compared to operators who prefer their current schedule, operators reporting a preference to work fewer hours will also report significantly lower job satisfaction.

Reporting the failure of the traditional full or part-time dichotomy to distinguish among workers on measures of job satisfaction, Krausz et al. (2000) investigated preferred work schedules as a percentage of the actual work schedule in their investigation of job attitudes. In their sample of hospital nurses, Krausz et al (2000) reported that where their

respondents indicated a preference to work less than a full-time workload, they also reported lower job satisfaction. Only 26% of their respondents who worked full-time indicated a preference for their actual schedule, a finding attributed to the demanding nature of their busy jobs.

Owing to the high intensity of the workload acknowledged by several authors (e.g., Callaghan & Thompson, 2002; Mulholland, 2002), a preference to work fewer hours might also be found among call centre operators. Indeed, Taylor and Bain (1999) provided evidence of an increasing demand for part-time call centre jobs, which they attributed to the "…inherently stressful nature of the job" (p. 111). The quantitative work demands central to the call centre operator work role have been implicated in depleting job-coping resources faster, leading to a greater risk of health problems – the 'health impairment hypothesis' (Bakker et al., 2003). Consistent with the conservation of resources theory of work stress (Hobfoll, 1989; Hobfoll, Freedy, Lane & Geller, 1990), the constant depletion of resources required to do the job may in fact lead to higher levels of stress felt. Indeed, constant depletion of energetic resources is strongly associated with a greater susceptibility to strain (e.g., Cooper et al., 2001; Taylor et al., 1997), including decreased immunological competence (Fisher, 1989). Evidence from inside the call centre suggests that where operators were employed full time they took a higher number of sick days (Deery et al., 2002). Considering that the priority for job design in the call centre is to achieve maximal labour power from each employee (e.g., Russell, 2002), it is plausible that the intensified work regime of call centre operators may exceed energetic resources in less than a full-time shift. Further, that this may negatively impact wellbeing at work.

In line with the 'health impairment' hypothesis, where operators work more than their preferred number of hours they are also likely to report lower levels of job-related psychological wellbeing (e.g., Krausz et al., 2000). Under the assumption that the intensity

of call work depletes available resources before the end of their shift leading to a need for operators to reduce the number of hours or shifts they work per week for the sake of their psychological wellbeing, it is hypothesised that where call centre operators report a preference to work fewer hours, they will also report lower job satisfaction.

Hypothesis 6: Operators reporting low job satisfaction will also report lower job commitment

From their meta-analysis of 879 correlations reported in studies of various occupational groups, Cooper-Hakim and Viswesvaran (2005) reported sample size-weighted mean correlations indicating a moderate positive association between organisational commitment and job satisfaction, and a significant negative association between these variables and turnover intention. Although few studies have investigated these relationships among samples of call centre operators, preliminary findings suggest that the low complexity of call work is predictive of low organisational commitment (e.g., Grebner et al., 2003), which (in turn) holds low-to-moderate (positive) associations with higher incidences of withdrawal behaviour, including absenteeism (e.g., Bakker et al., 2003; Deery et al., 2002) and turnover (e.g., Van den Broek, 2002). Reflecting upon the mental, physical and emotional demands of call work reviewed in Chapter One, it is not surprising that call centre managers have reported average operator tenure at between 12 and 24 months (e.g., Callaghan & Thompson, 2002; Van den Broek, 2002). Operators themselves report projected lengths of tenure averaging between two and three years (e.g., Deery et al., 1999; Kleemann & Matuschek, 2002; Lewig & Dollard, 2003; Mulholland, 2002; Russell, 2002; Taylor & Bain, 1999). While the conditions in the call centre are hypothesised to be associated with low levels of job satisfaction, it is further anticipated that such a finding will (in turn) be related to low job attachment, shorter projections of tenure and a higher frequency of feeling trapped in the job. Consistent with the wider literature, it is hypothesised that low job satisfaction will be positively related to low job commitment.

CHAPTER THREE: METHOD AND PROCEDURE

3.1 Design

The present study was designed to compare the performance of the ACE and PEI models in predicting psychological wellbeing in two independent samples of inbound call centre operators. Both samples were selected from within the same organisational context, with similar governance and work role administration. This was done to increase the power of between-samples comparisons, minimising the potential for 'error' variance associated with comparisons across different types of work.

3.2 Research Setting

The present study investigated inbound call centre operators, working in two call centres within the same public sector organization. Both call centres received telephoned enquiries from customers of an Australian Commonwealth Service Delivery Agency, an agency responsible for delivering welfare services assisting the unemployed, students, the disabled, the aged, individuals and families drawing low incomes. Operators working in these call centres belonged to one of several enquiry-specific teams taking calls from one of the above customer groups, working within a prescribed information portfolio. Calls included enquiries about application processes, entitlements and job search programs and lasted approximately nine minutes on average, depending upon the portfolio[1] (R.Chapman, Personal Communication, 18 August 2003). All enquiries were automatically routed (by enquiry content) to the next available operator within the relevant portfolio-specific team. While call procedures were not scripted, they were guided by minimum procedural standards. Average call volume was estimated at 37 calls per shift (R.Chapman, Personal Communication, 18 August 2003).

[1] Enquiries regarding aged services took longer than enquiries about unemployment benefit entitlements.

Typical of most, the call centres involved in the present study had relatively flat hierarchies consisting of a manager and one team leader per ten operators, of which there were more than a hundred. While individuals within teams were expected to share their knowledge and experience with other team members, team leaders were required to manage attendance and availability of their subordinates and to notify them of updates to software systems and procedures. Team leaders conducted weekly performance reviews with each team member, specifically addressing their performance against statistical benchmarks. Occasionally, individuals were rotated between teams to enable exposure to more of the call centre operations.

In addition to call availability (attendance, breaks and downtime), call-handling performance was monitored for call volume (number of calls answered), call duration, call-wrap (time to complete post-call administration), queue returns (calls sent back to the waiting queue), call terminations and calls forwarded. During a shift, when calls exceeded the benchmarked average call duration, the team leader would either listen in or physically go to the operator to determine if they needed assistance to finalise the enquiry. Call service quality was also monitored, with management delegates (not team leaders) sampling the quality of operator interventions by 'listening-in', advising operators of when this would occur. Operators were also provided regular feedback of their qualitative performance.

Work shifts were staggered to meet projected peaks in call volume from 0745 through 1800hrs. During shift, operators were required to be engaged in call work for 98% of their paid work time. While average shift length was 7 hours 21 minutes, 5 hours 30 minutes (75% of shift) was expected to be talk-time (time spent engaged in calls) with the remaining time (25% of shift) spent in post-call and general work role administration. During their shift, operators were allocated five minutes break per 75 minutes call work,

10-15 minutes for morning and afternoon tea breaks and 30 minutes for lunch. In addition, operators were allocated three hours learning and development time per fortnight, and were allotted twice the number of sick days compared to any other employed group within the same agency. Annual turnover at these centres was estimated at between 30 and 40% (R. Finerty, Personal Communication, 15 September 2003).

3.3 Respondent Characteristics

3.3.1 Sample One

Sample one consisted of 66 public sector call centre operators (56 [85%] females, 10 [15%] males) between 20 and 59 years of age, with an average age of 35 years. Education levels within the sample ranged from 8 to 20 years, with average educational attainment reflecting completion of secondary schooling through Year 12. Responding to the question of cultural background, 76% (50) identified themselves as Australian, 12% (8) identified themselves as Indigenous Australian, 8% (5) identified themselves as of migrant background, and 5% (3) did not identify themselves as belonging to the first three categories. The median length of time spent in the present job was 20 months (M = 25.98, SD = 24.81) and the median length of time spent in the industry was approximately 22 months (M = 33.97, SD = 32.57).

3.3.2 Sample Two

Sample two consisted of 126 public sector call centre operators aged between 21 and 60 years, with an average age of 35 years. As with the first study, there were many more females (110 or 89.4%) than males (13 or 10.6%). Three respondents declined to specify their gender. Education levels within sample two ranged from 9 to 19 years (median 12 years). Approximately 77% (94) of the respondents in sample two identified themselves as Australian, 11.5% (14) identified themselves as Indigenous Australian and

10.7% (13) identified themselves as of migrant background. One participant (.8%) did not identify with the first three categories. Eighty-nine participants (71%) were married, or in a marriage-like relationship. Thirty-five participants (28%) reported no partner, and three participants (1%) did not specify their marital status. The average length of time spent in the present job ranged from 6 to 120 months (M = 29.99, SD = 23.84), and the average overall length of time spent in the industry ranged from 6 to 186 months (M = 38.26, SD = 33.34). All respondents were permanent employees. Fifteen respondents in sample two also participated in sample one, owing to the fact they were still employed by the call centre originally canvassed for involvement in sample one, at the time this centre was approached for involvement in sample two of the study.

3.4 Measures

3.4.1 Demographic Characteristics

Four items at the beginning of the questionnaire (refer to Appendix A) asked for information on age, gender, education (years) and ethnicity. Sample two respondents were also asked for an indication of marital status to provide a broader description of their demographic characteristics.

3.4.2 Job Involvement

In both samples, respondents were asked to indicate their current length of tenure and approximate time spent in the industry. However, upon examination of sample one data, the anecdotal accounts of respondents, and the literature associated with job involvement, a further six items (numbered 8 through 13) were included in the questionnaire for the data collection exercise in sample two to enable a test the additional hypotheses (five and six). In addition to tenure, sample two respondents were also asked how many hours they actually worked and how many hours they would prefer to work

each week. Respondents were also asked to indicate the nature of their current position (casual, temporary or permanent).

In sample two, respondents were also asked to provide an indication of their level of organisational commitment. Three items were included to elucidate extent of job attachment (job attachment), whether respondents felt trapped in their job by a lack of alternative employment opportunities (job entrapment), and how long they intended to remain in their current position if it were up to them (projected job stay).

Job attachment was rated on a qualitative scale in an ascending order from low to high job attachment. To the question "Which of the following statements best represents your attachment to your current job?" respondents were asked to circle one of the following options. (a) "If other opportunities arose (eg, a different job, career change, full-time study) I'd leave this job, even if it meant less money for a while", (b) "If a job in the same field was available outside this company at the same salary level, I'd leave without hesitation", to (c) "This job suits my current life circumstance- it would be too disruptive to move to another job just now", (d) "Even if I was offered another position outside this company for more money, I'd find it hard to leave", and (e) I would take a pay cut to keep this job because I believe in what we are trying to achieve as a company. Options A through E were recoded 1 through 5. Accordingly, higher scores on this item reflect greater attachment to the job.

Job entrapment was assessed by responses to the item "How often do you feel as though you are trapped in this job by the lack of alternative employment opportunities?" Responses were rated on a five point Likert scale ranging from 1 (never) to 3 (sometimes) through 5 (very often). Higher scores for this item reflect a higher frequency of thoughts representing feelings of being trapped in the job.

Projected job stay was assessed by responses to the item "If it were up to you, how much longer would you stay in this job?" Responses were rated on an ascending four-point scale reflecting projected duration of tenure. Options included less than 12mths (coded as 1), up to 2 years (coded as 2), more than two years (coded as 3), and Indefinitely (coded as 3). Higher scores on this item reflect longer projected tenure.

After reversing the scores for job entrapment, it was then combined with job attachment and projected job stay to form a 'tenure commitment' scale, where higher scores reflect greater levels of commitment to ongoing tenure. The tenure commitment scale was developed to assess commitment to remaining in the job, informed by the 'affective' and 'continuance' dimensions of the organisational commitment construct (Allen & Meyer, 1990; Meyer & Allen, 1997). Scores on the tenure commitment scale equal to or less than 6 were considered to reflect low tenure commitment. This cut-off point was determined by the sum for responses on the three-item scale that would reflect a response implying that respondents' would leave their job without hesitation, that respondents sometimes felt trapped in the job and projected their future job stay as less than twelve months. As this scale was specifically developed for use in the present study, no previous data were available on its reliability or validity.

3.4.3 Psychological Wellbeing

Three indices of psychological wellbeing were investigated in the present study. In keeping with Warr's (1987) distinction, context-free psychological wellbeing was represented by psychological distress and life satisfaction, whereas job-related psychological wellbeing was represented by job satisfaction.

3.4.3.1 Psychological Distress

Psychological distress was assessed using the 12-item version of the General Health Questionnaire (GHQ12; Goldberg & Williams, 1988). The GHQ12 enables the respondent to rate the degree to which they are affected by a list of symptoms related to symptoms of minor psychiatric morbidity. The item content of the GHQ12 covers perceived level of strain, self-confidence, dysphoria, hopelessness and vegetative symptoms, including worry-related sleep loss and difficulties such as thought sluggishness and concentration deficits. Respondents indicate the frequency of these symptoms on an ascending scale from "less than usual" (column 1) through "same as usual" (column 2), "more than usual" (column three), to "much more than usual" (column 4). Indications further along this scale reflect a greater impact of the symptoms and higher levels of psychological distress.

There are two main methods used to derive GHQ12 composite scores. The most useful for the purposes of inferential statistical analyses is the Likert method, where columns one through four are scored zero, one, two, and three. In this method, employed people with optimal mental health generally score less than or equal to 8 (Banks, Clegg, Jackson, Kemp, Stafford, & Wall, 1980), whereas psychologically unhealthy unemployed people generally score between 9 and 15 (Banks et al., 1980). While Iversen and Sabroe (1988) found mean Likert GHQ12 scores of between 7 and 8 points in more than seven hundred employed Danish Shipyard workers, Evans and Haworth (1991) reported a mean GHQ12 Likert score of 9.11 (SD = 4.89) among their sample of UK public servants.

The second method used to derive GHQ12 composite scores is the 'Caseness' method. In keeping with the GHQ12 design as a primary intervention tool, this method enables general medical practitioners to determine which of their patients are at risk of minor psychiatric morbidity and should be referred on to psychiatric services. In contrast

with the Likert method of scoring, the Caseness method scores responses in either of the first two columns as zero, and items in columns three and four as one, thereby determining the absence or presence of clinically distressing symptoms. Higher scores using this method reflect a higher frequency of symptoms indicative of psychological distress. Using this method, Evans (1986) reported a mean Caseness score of 1.72 (*SD* = 2.40) for his employed group, Hepworth (1980) reported a mean Caseness score of 0.82 (*SD* = 1.28), whereas Banks et al. (1980) reported Caseness data for both married (*M* = 0.97, *SD* = 1.87) and single (*M* = 1.21, *SD* = 2.02) employed people.

While the initial Caseness criterion point was set at 2.0, where scores equal to or greater than 3.0 indicated a need for psychiatric intervention (Evans, 1986), recent research investigating occupational groups has utilised a more conservative Caseness criterion point of 3.0 where GHQ12 Caseness scores equal to or greater than 4.0 are interpreted as indicative of minor psychiatric morbidity (e.g., Calnan et al., 2001; Hardy, Shapiro, Haynes, & Rick, 1999). The detection of psychiatric Caseness has been emphasised as a particular strength of the GHQ12 in studies investigating working populations (Payne, 2001; Warr, 1991). Further, the GHQ12 has demonstrated convergent validity with other indicators of mental health and is widely adopted in occupational studies as an indicator of context-free psychological wellbeing (Hardy et al., 2003; Payne, 2001; Payne, Wall, Borrill, & Carter, 1999).

Reviewing data from several studies utilising the more conservative criterion point of 3.0, Payne (2001) observed that 17.8% of employed people participating in British Household Panel Survey of 1996 were at risk of 'minor psychiatric morbidity'. Hardy et al. (2003) reported that 26.6% of the hospital workers sampled in their British study also exceeded this criterion. Evidence also suggests there are differences in the extent of Caseness between various occupational groups (Calnan et al., 2001). For example, 30% of

doctors working in NHS general practice clinics were at risk of minor psychiatric morbidity compared to 17% of their receptionists (Calnan et al., 2001). To-date, no data are available that reflect proportions of psychiatric Caseness among populations of call centre operators.

While scarce in the literature, Australian community base rates are available. Using the 60-item version of the GHQ in their Western Australian epidemiological study (N = 2324), Finlay-Jones and Burvill (1977) reported age-standardised community base-rates for minor psychiatric morbidity of 13.6% for men and 18.9% for women. In respect of employed groups, unskilled male workers indicated the highest incidence of minor psychiatric morbidity at 19.8%. Women showed no differences between types of occupation and base rate data.

The GHQ12 has been reported as having a sound factor structure and adequate psychometric properties (Payne, 2001; Werneke, Goldberg, Yalcin, & Uestuen, 2000). It has been used extensively in occupational studies investigating context-free psychological wellbeing, with internal consistency estimates (α) reported at .82 (Banks et al., 1980) and .92 (Hardy et al., 2003). Pernice, Trlin, Henderson and North (2000) reported internal consistency reliability for the GHQ12 at .85, across three diverse cultural groups (Pernice, Trlin, Henderson, & North, 2000). While internal consistency data for the Caseness scoring method was not reported among these studies, the GHQ manual (Goldberg & Williams, 1988) reported adequate sensitivity and specificity for the more conservative criterion of ≥ 3.00.

3.4.3.2 Life Satisfaction

Life satisfaction was assessed using the 11-item Total Life Satisfaction scale (TLS; Evans, 1986; Evans & Haworth, 1991) a measure of life satisfaction derived from the original 15-item Life Satisfaction Scale (LSS; Warr et al., 1979). Summing the eleven

items of the TLS provides a composite measure of satisfaction with different aspects of the respondent's everyday life, including where they live, their leisure activity, present state of health, perceived standard of living, social and family life, and how hopeful they were of what the future held for them. Levels of satisfaction per item are rated on a seven point ascending Likert scale ranging from 1 (extremely dissatisfied) through 4 (not sure), to 7 (extremely satisfied). The possible range of scores on the TLS is therefore 11 to 77, where higher scores indicate greater life satisfaction.

The TLS has been used as a measure of context-free psychological wellbeing in several occupational studies investigating employed populations (e.g., Evans, 1986; Evans & Haworth, 1991; Haworth & Paterson, 1995; Haworth et al., 1997; Bryce & Haworth, 2003). Of these studies, only Evans (1986) provided descriptive data, reporting a Mean TLS score of 54.11 (SD = 7.90) for his employed sample (N = 36). Bryce and Haworth (2003) reported alpha internal consistency coefficients for the TLS as ranging from .84 (females) and .87 (males). Before the present study, no other psychometric data were available for this scale.

3.4.3.3 Job Satisfaction

Job Satisfaction was assessed by the short-form of the Minnesota Satisfaction Questionnaire (MSQ: Weiss et al., 1967). The short-form of the MSQ (referred to as MSQ-SF hereafter) is a twenty-item measure that includes intrinsic (satisfaction with work role operations) and extrinsic (satisfaction with pay and conditions, management performance) subscales, which together with two further items, are summed to provide a measure of general job satisfaction. Recent research has supported the use of the MSQ-SF general scale as a composite measure blending both affective and cognitive components of job satisfaction (Schleicher et al., 2004), although it has been previously noted that the MSQ-SF is primarily a cognitive measure of job satisfaction (Moorman, 1993).

The twenty items of the MSQ-SF general scale are scored on a Likert rating scale ranging from 1 (very dissatisfied) through 3 (not sure) to 5 (very satisfied). Item content includes references to satisfaction with being able to keep busy, being able to do things differently from time to time, the competence of supervisor/s, being able to be 'somebody' in the community, pay, chances for advancement, and the praise given for doing a good job. Total MSQ-SF general scale scores range from 20 through 100, with higher scores indicating higher levels of job satisfaction.

Median alpha estimates of internal consistency for the MSQ-SF were reported as .86 for Intrinsic Satisfaction, .80 for extrinsic satisfaction and .90 for general job satisfaction (Weiss et al., 1967). Test re-test correlations were reported for the general job satisfaction scale as .89 at one week and .70 at twelve months post initial administration (Weiss et al., 1967). While Bledsoe and Brown (1977) provided factorial validation of the general job satisfaction scale as a unitary construct, Moorman (1993) has also provided factorial validation for the independence of the intrinsic/ extrinsic subscales.

The occupations sampled in the MSQ-SF normative data (Weiss et al., 1967) that most closely resemble the call centre operator work role investigated in the present study were office clerks and secretaries. However, the descriptions of these work roles did not include a computer interface, a key aspect of the call centre operator work role. Consequently, specific work types contained in the MSQ-SF normative data were not considered adequate for direct comparison with the call centre operators involved in the present study. Where this is the case, the MSQ manual recommends utilising the norms from the total combined employed sample (N = 1723). The mean MSQ-SF general scale score for this group was 74.85 (SD = 11.92). More recently, Schleicher et al (2004) reported a mean MSQ-SF general scale score of 75.8 (SD = 12.1), for their sample of 500

Israeli Nurses. While nursing is different to call centre operations, these data were included to show a more recent comparison to other work roles.

3.4.4 The Access to Categories of Experience (ACE) Model

Extent of access to Jahoda's (1981) five categories of experience (Activity, Social Contact, Collective Purpose, Social Status, and Time Structure) was assessed using the 'ACE scales' initially developed by Miles (1983), refined by Evans (1986) and subsequently published by Haworth (1997). Each of the five ACE scales directly correspond to Jahoda's (1981) categories of experience and contain three items that are rated for extent of agreement on an ascending seven-point Likert scale ranging from 1 (Completely Disagree) through 4 (Neither Disagree nor Agree) to 7 (Completely Agree). Total ACE scale scores therefore range from 3 to 21, with higher scores indicating greater experience within each category. The general trend in the literature has been to report the mean scale scores for each of the ACE scales, a trend continued in the present study in view of the benefits to between-model comparisons. The 15 items contained in the ACE scales are presented in Appendix B.

Mean ACE scale scores have typically been used to demonstrate whether "Access" to an ACE category has been met, a criterion determined by a mean scale score ≥ 4.00. While Evans (1986) used this criterion to demonstrate greater access to the ACE categories for an employed sample relative to an unemployed sample, the main focus in the present study was the extent of access, or level of experience within each category and how this relates to the psychological wellbeing of call centre operators.

While there remain no psychometric data for the ACE scales in application to employed samples, the current form of the ACE scales has been reviewed for its factorial structure in unemployed samples, with mixed results. While Evans and Banks (1992) reported an exploratory factorial validation for five ACE scales, Creed and Machin (2003)

reported confirmatory factorial evidence for only four discernible factors, excluding *Time Structure*. Internal consistency (alpha) for the ACE scales have been reported as ranging between .52 for *Time Structure* through .68 for *Social Contact* (Evans & Banks, 1992). More recently, Creed and Macintyre (2001) reported higher alpha estimates for *Activity* (.83) and *Social Contact* (.74) using the same scales. Congruent with a recent review of internal consistency (e.g., Thompson, 2003), these alpha estimates appear to vary per sample investigated.

3.4.5 The Principal Environmental Influences (PEI) Model

The Principal Environmental Influences were assessed using the Principal Environmental Influences (PEI) scales developed by Haworth (1997). The nine PEI scales correspond directly to the nine PEIs proposed by Warr (1987) and are assessed by a variable number of items per PEI scale (see Appendix C for PEI scale item content). Overall, there are 39 items contributing to the PEI scales, of which 13 are taken from the ACE scales. Aside from the different rating scales used for the PEIs *Money* and *Physical Security*, the remaining seven PEI scales use the same seven-point Likert scales used in the ACE model, ranging from 1 (Completely Disagree) through 4 (Neither Agree nor Disagree) to 7 (Completely Agree). While *Externally Generated Goals* contains seven and *Valued Social Position* contains six, the remaining five PEI scales each contain only four items. Consequently, mean scale scores are calculated to facilitate comparisons between these PEIs. Following reversal of negatively worded items, higher mean scale scores indicate greater experience of the PEI. No data relating to the psychometric properties of the nine PEI scales were available prior to the present study.

3.4.5.1 Money

This PEI was measured by responses to three items designed to elucidate how respondents felt about their immediate financial situation. All three items were rated on a five point Likert scale. Item one was scored on an ascending five-point Likert scale from 1 (Very Difficult) to 5 (Very Easy), whereas items two and three were scored on an ascending five-point Likert scale from 1 (Very Often) to 5 (Never). Higher mean scores on this scale indicate greater availability of money.

3.4.5.2 Physical Security

This PEI was assessed using a composite score from three items asking how the respondent felt about their environment, with a particular emphasis on comfort, security and personal safety. Item one asks about three potential sources of discomfort within the environment including temperature, noise and lighting to which the respondent indicates the degree of discomfort. Ratings of discomfort are made on an ascending seven point Likert-type scale ranging from 1 (Never) to 7 (Very Often). These scores are subsequently reversed and averaged to provide a single environmental 'comfort' score, where higher scores on this item represent higher levels of comfort within the environment. Item two asks if the respondent felt threatened in some way, and requires a response on an ascending seven-point Likert scale ranging from 1 (Never) to 7 (All the time). This item is also reversed to provide an environmental 'security' score. In addition, item 2 includes a qualitative orientation question that makes no quantitative contribution to the scaled score, but orients the person to think about things that make them feel threatened. Higher scores on this item reflect higher perceived security. Item three requires the respondent to rate how safe they feel in the context of the world in which they live. This rating is made on an ascending seven-point scale ranging from 1 (Extremely Unsafe) to 7 (Very Safe). Higher scores for this item scale indicate higher levels of perceived safety. All three items are

summed to provide a composite total score, where higher scores reflect higher perceived *Physical Security*.

3.4.5.3 Valued Social Position

This PEI scale includes three items from each of the ACE scales *Collective Purpose* and *Social Status*. Higher mean scale scores reflect higher perceived contribution to community and higher social standing.

3.4.5.4 Opportunities for Interpersonal Contact

This PEI Scale contains three items from the ACE scale *Social Contact* and one item reflecting the experience of having one or more close friends. Higher scores on this PEI scale indicate greater opportunity for social contact during the day.

3.4.5.5 Externally Generated Goals

This PEI scale assesses environmental demands and contains two items from each of the ACE scales *Activity* and *Time Structure*. Higher mean scale scores reflect a greater experience of attendance and availability requirements, of having to achieve performance targets and of having a regular schedule of activities to do each day.

3.4.5.6 Environmental Clarity

This PEI scale assesses the clarity of performance expectations within the environment, having a direction in life and being a valued source of information for people. Higher scores indicate higher perceived environmental clarity.

3.4.5.7 Opportunities for Control

This PEI scale assesses level of autonomy, discretion over work task procedures and performance expectations in the work role. Higher scores on this PEI scale indicate higher levels of perceived control over the order and process of work tasks.

3.4.5.8 Opportunities for Skill Use

This PEI scale assesses the extent to which respondents feel they can meet existing work task demands and how well the work environment provides for an extension or development of new skills. Higher scores on this PEI scale indicate greater opportunity for use and extension of existing skills.

3.4.5.9 Variety

This PEI scale assesses the extent to which respondents encounter changes within the work task routine during the day, particularly with respect to the experience of new or different tasks and diversity of activities. Higher scores on this PEI scale indicate greater breadth and diversity within the daily routine.

3.5 Procedure

3.5.1 Data Collection for Sample One

The researcher liaised with the management of two public-sector call centres to enlist support for the project, and arrange for questionnaire administration times. A message introducing the study was emailed from the manager of each centre to all operators approximately 7 days prior to administration of the questionnaire.

Unfortunately, one of the call centres to be involved in the data collection for sample one encountered an environmental work hazard involving the emission of toxic fumes from adhesives used in partitioning between workstations. This centre was operating at 20% normal capacity with remaining staff re-deployed to sites beyond the reach of the present study. Subsequently, the management at this call centre withdrew their involvement in the study, three days prior to questionnaire administration. The number of participants acquired for sample one was reduced to half of what was anticipated at the

inception of the study. The following procedure was carried out for the remaining call centre.

The researcher presented to the remaining call centre on the nominated days upon which the questionnaire was to be administered. Prior to commencement, management of the call centre sent an email reminder to operators advising them of the following procedure. Taking up a position in the amenities room, the researcher approached each call centre operator individually when they entered the room on their scheduled breaks. The project was introduced with reference to the introductory email that had previously advised them of the study, and individuals were asked for their participation by completing the questionnaire (see Appendix A).

If they agreed to participate in the study, operators were given a questionnaire package, complete with instructions and contact details of both the researcher and the project supervisor for further enquiries. At the time the questionnaire was administered, operators were made aware that they were under no obligation to complete any or all items, and that their participation would not identify them individually. They were given ten days to complete the questionnaire and post it in the locked questionnaire deposit box placed in the call centre. Of 100 questionnaires handed out, 66 were returned.

3.5.2 Data Collection for Sample Two

Approximately eighteen months later, the same two call centres were again consulted for involvement in the present study. Data collection was conducted following the same procedure used for sample one. 126 of the 181 call centre operators returned the questionnaire package, a response rate of 70%. Only 15 respondents participated in both sample one and sample two, a finding attributed to turnover.

CHAPTER FOUR: DESCRIPTIVE AND CORRELATION ANALYSES

4.1 Overview

This chapter presents descriptive statistics and bivariate correlation data for both samples. Descriptive findings for psychological distress, life and job satisfaction are compared to normative data to test hypothesis one, that levels of psychological wellbeing will be significantly lower for call centre operators. Subsequently, bivariate correlation data are reported with an exploration of inter-relationships, together with relationships between model and psychological wellbeing variables. To test hypotheses five, that a preference to work fewer hours would correspond with lower job satisfaction, mean levels of job satisfaction are compared between those sample two respondents who indicated a preference to work fewer hours and those who were content with their current schedule. Bivariate correlation data are also presented to test hypothesis six, that job satisfaction would be positively related to tenure commitment.

4.1.1 Data Screening

Data provided by respondents who participated in both samples one and two were removed where between-samples comparisons were made. This was done to maintain two independent samples of data, thereby providing an opportunity to replicate the findings of sample one. In both samples, estimates of skewness and kurtosis were examined for each variable to determine the extent their distributions conformed to normality. Where these estimates fell outside conservative normal limits (Skewness > 1.5, Kurtosis > 5.0), as per criteria recommended by Hammer & Landau (1981), outliers were eliminated case by case until the distribution fell within the limits of normality. Importantly, the distribution of model and psychological wellbeing variables fell within normal limits, and the shape of the frequency distributions for these variables closely approximated the mesokurtic shape of the Guassian curve. In fact, only two variables needed to be altered in this way.

In sample one, four cases were eliminated from the distribution of *Length of Tenure*[1], reducing the upper limit of tenure to six years. Although the distribution for 'actual hours' was non-normal and negatively skewed (owing to the majority of respondents working full-time), no alterations were made to this variable, because it was used only in calculation of the difference between actual and preferred hours.

The distribution for the variable 'preferred hours' was also negatively skewed due to one third of respondents indicating a preference to work full-time. Consequently, 55 cases were excluded from 'preferred hours' upon calculation of descriptive and correlation analyses, and upon calculation of the difference between actual and preferred hours (Diff.Hrs) variable to include only those respondents who indicated a preference to work fewer hours than their current schedule. This was done because analyses associated with this variable were focussed upon those respondents who preferred to work fewer hours than full-time. The excluded cases were subsequently included as a comparison group to investigation of the link between a preference to work fewer hours and job satisfaction.

4.1.2 Interpretability parameters

Power for interpretation of the analyses was set at .80, and the significance level was accepted as 0.05, following the convention for statistical analyses in behavioural science research (Hinkle, Wiersma & Jurs, 1988). Only statistically significant bivariate correlation coefficients equal to or greater than .3 (i.e., ≥ .25) were interpreted as per recommendations from Hinkle et al. (1988), owing to the increased probability of finding spurious significant correlations among the numerous correlations calculated. While other researchers in this field have utilised an interpretability criterion of ≥ .33 (e.g., Creed & Machin, 2003), this was considered overly stringent given the emphasis upon replication of associations in the present study.

[1] The omission of these cases was limited to analyses involving *length of tenure*.

It is also noteworthy that the number of respondents used in calculation of differences between means, bivariate and multi-variate relationships was variable due to occasional missing values within the data set. Where a respondent did not provide a response to a particular item – a 'missing value' within the data set – they were excluded from analyses involving that particular item. This subsequently led to minor fluctuations in degrees of freedom.

4.2 Descriptive Analyses

Measures of central tendency, dispersion and internal consistency for all continuous variables for samples one and two are presented in Table 4.1. The most striking finding was the similarity between samples one and two in respect of response characteristics.

4.2.1 Demographic Variables

On average, respondents in both samples were in their mid-thirties, had completed at least secondary school, had been in their current job between two and two and a half years, and had held other positions in the industry (see Table 4.1). In sample two, the range for tenure and time in industry was extended by several respondents indicating high values for these variables, resulting in slightly higher mean values for these variables relative to sample one. That said, standard deviation values for tenure and time in industry were approximately equivalent across each sample.

4.2.2 Job Involvement Variables (sample two only)

4.2.2.1 Actual Work hours

Three-quarters of sample two respondents reported working equal to or greater than a full-time working week, a median of 37 hours (see Table 4.1). Of 126 respondents, 121 worked at least 81.1% of a full time workload.

Table 4.1: Descriptive statistics for all continuous variables

	Sample One (N = 66)			Sample Two (N = 111)		
All Continuous Variables	*M*	*SD*	α	*M*	*SD*	α
Demographics						
Age (years)	34.95	9.31	n/a	35.24	8.48	n/a
Education (years)	12.55	2.55	n/a	12.29	2.51	n/a
Tenure (months)	25.98	24.81	n/a	29.99	23.84	n/a
Time in Industry (months)	33.97	32.57	n/a	38.26	33.34	n/a
Job Involvement						
Actual Work Hours	-	-	-	37.00	n/a	n/a
Preferred Work hours	-	-	-	29.32	4.62	n/a
Diff. Hrs	-	-	-	6.71	2.76	n/a
Job Attachment	-	-	-	2.56	1.00	n/a
Job Entrapment	-	-	-	3.02	1.28	n/a
Projected Job Stay	-	-	-	2.39	1.23	n/a
Tenure Commitment	-	-	-	7.96	3.09	.85
Psychological Wellbeing						
Psychological Distress – *Likert*	12.10	5.16	.87	12.79	5.97	.87
Psychological Distress – *Caseness*	2.71	2.98	-	2.97	3.22	-
Life Satisfaction	56.03	7.67	.87	57.90	8.18	.83
Job Satisfaction – *General scale*	71.09	13.08	.92	69.27	14.18	.94
– *Intrinsic Scale*	42.92	7.56	.87	42.00	8.59	.91
– *Extrinsic Scale*	20.59	5.20	.87	19.72	4.89	.84
Model 1: ACE						
Activity	5.61	.98	.43	5.58	.84	.26
Social Contact	4.09	1.43	.64	4.01	1.33	.58
Collective Purpose	5.08	1.13	.68	5.08	1.02	.58
Social Status	4.61	1.18	.62	4.78	1.14	.51
Time Structure	6.06	.76	.32	6.04	.78	.40
Model 2: PEI						
Money	3.65	.94	.85	3.46	.85	.83
Physical Security	4.81	.92	.73	4.85	.98	.60
Valued Social Position	4.84	.93	.67	4.93	.90	.65
Externally Generated Goals	5.22	.67	.33	5.43	.63	.31
Environmental Clarity	4.74	1.07	.55	4.90	.94	.52
Opportunities for Control	3.59	1.03	.34	4.04	1.04	.40
Opportunities for Skill Use	4.71	.94	.39	4.71	.99	.46
Variety	3.40	1.16	.67	3.69	1.05	.55
Opport's for Interpersonal Contact	4.42	1.23	.59	4.47	1.12	.54

Note. The values for *Money* and *Physical Security* are not directly comparable to other PEI scales because they were derived from different rating scales. Also, all sample two respondents (N = 126) were included in the descriptive data for job involvement as no between-samples comparisons were made. Median values were substituted for *Actual Hours*, because this variable was not normally distributed.

4.2.2.2 Preferred Work Hours

Fifty-five sample two respondents (44%) reported a preference to work equal to or greater than a full-time (36.75 hours) working week. Of the 71 respondents (56%) who

reported a preference for working fewer hours per working week, 21 (29.6%) reported a preference to work less than 30 hours per week. On average, respondents who reported a preference to work fewer hours, indicated a preference to work approximately 29 hours per week (see Table 4.1).

4.2.2.3 Difference between Actual and Preferred Hours (Diff. Hrs)

Sample two respondents who reported a preference to work fewer hours per week were found to have a mean difference of 6.71 hours (SD = 2.76) between their actual and preferred hours (see Table 4.1). Compared to those sample two respondents who indicated no difference between their actual and preferred work hours, respondents who reported a preference to work fewer work hours than their current schedule also reported significantly lower levels of job satisfaction, $F(1, 119) = 7.49$, $p = .007$. Accordingly, hypothesis five, that those respondents who preferred to work fewer hours would be less satisfied with their jobs, was supported.

4.2.2.4 Job Attachment

Of the respondents in sample two, 29 (23.2%) indicated they would leave their current job for alternative opportunities (work or study), even if it meant less money for a while. A further 12 (9.6%) of respondents indicated they would consider a move to another call centre job for the same pay without hesitation. While 71 (56.8%) respondents indicated the job suited their current life circumstance and that it would be too disruptive to move to another job, 11 (8.8%) respondents reported they would find it difficult to leave their current job, even if they were offered another job for more money. That said, only two respondents (1.6%) reported they would take a pay cut to keep their current job, because they believed in the company purpose. Overall, 41 respondents (32.8%) in sample two reported they would consider a move from their current position to another job or

alternative opportunity, whereas half the respondents indicated it would be too difficult to leave at this point in time. Only 13 (10%) respondents reported a positive attachment to the company.

4.2.2.5 Job Entrapment

While 26.2% of the respondents in sample two reported feeling trapped in their current job sometimes, 34.9% felt this way fairly often to very often. That said, 25.4% rarely encountered these feelings while 13.5% reported never feeling like they were trapped in their current job. Overall, the majority of sample two respondents (61.1%) at least sometimes felt trapped in their current job by the difficulties associated with changing jobs and the lack of suitable employment alternatives.

4.2.2.6 Projected Job Stay

When asked how long they saw themselves participating in their current work role if it was up to them, more than half the respondents in sample two indicated a projected tenure of less than two years. More specifically, 34.9% of respondents reported a projected job stay of less than twelve months, 19% indicated less than two years and 18.3% indicated more than two years. A further 27.8% of respondents reported they were likely to remain in their current job indefinitely.

4.2.2.7 Tenure Commitment

Table 4.1 shows that the mean total score for Tenure Commitment was 7.96 (*SD* = 3.09), and that the Tenure Commitment scale held adequate internal consistency. Recall that scores equal to or less than 6 were considered to reflect low tenure commitment. Upon closer inspection, more than one third (35.2%) of the respondents in sample two indicated low commitment to ongoing tenure in their current position.

4.2.3 Psychological Wellbeing

Mean total scores, dispersion and internal consistency for psychological distress (GHQ12), life satisfaction (TLS) and job satisfaction (MSQ-SF) for both samples are reported in Table 4.1. All three measures of psychological wellbeing demonstrated adequate internal consistency ($\alpha \geq .70$).

4.2.3.1 Psychological Distress

Mean GHQ12 Likert and Caseness scores were very similar between samples (see Table 4.1). While mean reported levels of psychological distress (Likert) in sample two were marginally higher than those reported for sample one, the between-samples difference was not significant, $F(1, 175) < 1$. However, the average level of psychological distress reported in both samples of the present study was significantly higher than the average level of psychological distress reported for the employed sample investigated by Evans and Haworth (1991; Sample one: $t(65) = 4.72$, $p < .001$, Sample two: $t(125) = 6.93$, $p < .001$), and (by logical deduction) the employed samples investigated by Banks et al. (1980), Hepworth (1980) and Iversen and Sabroe (1988), since these studies reported lower mean levels of psychological distress than Evans and Haworth (1991) and all relevant statistical indicators support this conclusion. On average, respondents in both samples of the present study reported significantly higher levels of psychological distress relative to these normative data, providing support for hypothesis one.

Investigating the proportions of respondents considered at risk of minor psychiatric morbidity, 33.8% of respondents (22/65) in sample one and 31.5% (35/111) of the respondents in sample two scored equal to or greater than the caseness criterion (4.0) proposed by Hardy et al. (2003). By contrast, only 17.8% of employed British householders (Payne, 2001) and 26.6% of British public sector hospital workers (Hardy et al., 2003) were at the same level of risk. In addition, a comparison with Australian

community base-rates (Finlay-Jones & Burvill, 1977), suggests that a substantially higher proportion of respondents in the present study was at risk of minor psychiatric morbidity. Compared to these base rates and the data from employed populations, a higher proportion of the call centre operators in the present study were at risk of minor psychiatric morbidity.

4.2.3.2 Life Satisfaction

Although the mean TLS score for sample two was marginally higher than that found in sample one (see Table 4.1), the between-samples difference was not significant $F(1, 175) = 2.29$, $p = .13$. Compared to numerical values derived from the anchor points[2] on the Likert rating scale, these data suggest that respondents in both samples were moderately satisfied with their lives in general. Compared to the mean TLS score reported for the employed sample in Evans (1986), respondents in the present study reported significantly greater life satisfaction in sample one $t(65) = 2.03$, $p < .05$, and sample two $t(125) = 5.17$, $p < .001$. The finding here does not support hypothesis one, that call centre operators will be worse off compared to employed normative samples.

4.2.3.3 Job Satisfaction

The mean MSQ-SF general scale score for sample two was slightly lower than that found for sample one (see Table 4.1), although this between-samples difference was not statistically significant, $F(1, 169) < 1$. Compared to numerical values derived from the anchor points[3] on the Likert rating scale, these data suggest that respondents in both samples reported low job satisfaction. Furthermore, compared to the mean MSQ-SF general scale score for the total employed sample reported in the MSQ manual (Weiss et al., 1967), the call centre operators in the present study were significantly less satisfied

[2] Meaningful interpretation of mean total scores may be derived from the anchor points on the Likert scale. For the TLS, the range of scores was obtained by multiplying each response option on the 7-point rating scale by 11 (the total number of items in the scale). In this way, 44 = not sure, 55 = moderately satisfied, 66 = very satisfied and 77 = extremely satisfied.

[3] Similar to the above note, the range of scores for the MSQ-SF general scale was obtained by multiplying each response option on the 5-point rating scale by 20 (the total number of items in the scale). By doing this, 60 = neither satisfied nor dissatisfied, 80 = satisfied, 100 = very satisfied.

with their jobs in both sample one $t(62) = -4.11$, $p < .001$, and sample two $t(120) = -6.67$, $p < .001$. This finding provides support for hypothesis one.

An important qualification of this result was found upon comparison of mean scores for the intrinsic and extrinsic MSQ-SF subscales (see Table 4.1) with the MSQ-SF normative data (Weiss et al., 1967). Compared to this normative data, respondents in the present study were significantly less satisfied in relation to operational factors affecting the work role (i.e., intrinsic job satisfaction) in sample one $t(62) = -4.43$, $p < .001$, and sample two $t(120) = -5.58$, $p < .001$. However, no significant difference was found between the MSQ-SF normative data and either sample one $t(65) < 1$, or sample two $t(124) < 1$, in respect of supervisory relations and work role administration (i.e., extrinsic job satisfaction).

4.2.4 The Access to Categories of Experience (ACE) model

The mean ACE scale scores in Table 4.1 show considerable similarity between the samples. In fact, no significant between-sample differences were found in reported levels of *Activity* $F(1, 168) < 1$, *Social Contact* $F(1, 173) < 1$, *Collective Purpose* $F(1, 174) < 1$, *Social Status* $F(1, 174) < 1$, or *Time Structure* $F(1, 170) < 1$. Table 4.1 also shows the internal consistency for all five ACE scales fell below the adequacy criterion ($\alpha \geq .70$), although the alpha coefficients for *Social Contact*, *Collective Purpose* and *Social Status* were considered within a low, but acceptable range (i.e., .70 to .50) given the small number of items per scale. However, *Activity* and *Time Structure* held alpha coefficients much lower than .50 in both samples and therefore require considerable caution upon interpretation, owing to the greater potential for measurement error.

In both samples, the mean scale scores for all five ACE scales met the Evans' (1986) 'Access' criterion, being equal to or greater than 4.00 (see Table 4.1). Relating

mean scale scores to the anchor points of the Likert rating scale[4] upon which items where rated, the mean scale score data suggest very low access to experiences of *Social Contact*, low extent of access to experiences relating to *Social Status* and *Collective Purpose* in both samples (see Table 4.1). These data suggest that during their daily routine, operators encountered very few opportunities for social interaction, low access to experiences contributing to a perception of social standing and low to moderate access to experiences that indicate their positive contribution to community.

Despite problems of internal consistency, the ACE scales *Activity* and *Time Structure* were responded to consistently across both samples. The mean scale scores for *Activity* suggest low-to-moderate access to experiences indicative of a busy task schedule, whereas the findings for *Time Structure* imply that operators encountered moderate access to experiences of time-dependent attendance and availability requirements in their daily routine. Given the higher probability of measurement error, less certainty is applied to this interpretation relative to the other ACE scales.

4.2.5 The Principle Environmental Influence (PEI) model

As with the ACE model, considerable similarity between samples is evident upon perusal of the mean PEI scale scores in Table 4.1. In fact, no significant between-samples differences were found in reported levels of *Money* $F(1, 175) = 1.09$, $p = .30$, *Physical Security* $F(1, 169) < 1$, *Valued Social Position* $F(1, 173) < 1$, *Environmental Clarity* $F(1, 174) = 1.02$, $p = .31$, *Opportunities for Skill Use* $F(1, 173) < 1$, *Variety* $F(1, 174) = 3.45$, $p = .07$, or *Opportunities for Interpersonal Contact* $F(1, 173) < 1$. Compared to sample one however, significantly higher values were detected in sample two for *Externally Generated Goals* $F(1, 168) = 6.76$, $p = .01$, and *Opportunities for Control* $F(1, 172) = 6.78$, $p = .01$. Despite the significance of these differences, comparison of the mean PEI scale scores to the anchor

[4] Relevant anchor points for this discussion include 4 = Neither Disagree nor Agree, 5 = Slightly Agree, 6 = Moderately Agree. Strength of agreement reflects extent of access per category.

points of the relevant Likert scale[5] upon which scale items were rated, the same subjective interpretation is applicable in both samples.

Excluding *Money* and *Physical Security*, the remaining seven PEI scales fell below the adequacy criterion for internal consistency ($\alpha \geq .70$) in both samples (see Table 4.1). Of these scales *Valued Social Position*, *Variety*, *Environmental Clarity* and *Opportunities for Interpersonal Contact* held alpha levels within a low but acceptable range (i.e., .70 to .50). While low alpha coefficients were found for *Opportunities for Skill Use* and *Opportunities for Control*, *Externally Generated Goals* was the least internally consistent – despite this scale having seven items. Considerable caution was exercised in interpreting findings for PEI scales with alpha estimates of less than .50.

4.2.5.1 Environmental Integrity

The mean scale scores for *Money* (see Table 4.1) suggest that on average, operators in both samples experienced a moderate availability of money. Upon closer inspection of mean item scores, it was evident that operators found it fairly easy to manage on the money they received, seldom declining social engagements due to limited availability of money. Operators in both samples also reported a low to moderate experience of *Physical Security.* The mean item scores suggest that on average, operators encountered a low distractibility from their work environment and generally perceived a low physical threat, despite some uncertainty that the world was a safe place to live.

4.2.5.2 Social Reference

Compared to the anchor points of the Likert rating scale upon which items were rated, the mean scale scores in Table 4.1 suggest that on average, operators from both samples reported very low levels of experiences indicating *Opportunities for Interpersonal*

[5] Relevant anchor points for PEIs representing social reference, job demands and job scope, include 3 = Slightly Disagree, 4 = Neither Disagree nor Agree, 5 = Slightly Agree, 6 = Moderately Agree. Strength of agreement = extent of experience per PEI.

Contact, and low levels of experiences reflecting a *Valued Social Position*. Operators in both samples experienced few opportunities for regular social interaction during the day, or for engaging in activities that make a worthwhile contribution to their community and contribute positively to their social standing.

4.2.5.3 Job Demands

On average, operators from both samples encountered a low to moderate extent of experience relating to *Externally Generated Goals*. This finding does not reflect the expectation from the literature review provided earlier – much higher levels of this PEI were anticipated. The low to moderate finding here may be a reflection of the poor internal consistency, underlying the questionable content validity of this particular scale – a point discussed in Chapter Six.

4.2.5.4 Job Scope

Relating the mean PEI scale score data from Table 4.1 to the anchor points of the Likert scale, operators consistently indicated little to no *Variety* within their daily routine and tended to report very low levels of *Opportunities for Control*. On average, operators in both samples also reported low levels of *Environmental Clarity* and *Opportunities for Skill Use*. Overall, these data indicate that on average, operators consistently reported low job scope, emphasised by very limited diversity within the daily routine, few opportunities for the use and extension of skills, low perceived control over the order and process of work tasks and low clarity for the expectations of the work environment. While congruent with what is known of call work, the confidence in interpretation of the PEI scales *Opportunities for Control* and *Opportunities for Skill Use* is limited by their low internal consistency. However the breadth of scope and small number of items within these scales

suggests that excluding these scales from interpretation and further analyses was not warranted.

4.3 Correlation Analyses

Bivariate correlations between all continuous variables are provided in Table 4.2. Given the numerous correlations presented in Table 4.2, only those of direct relevance to the aims of this thesis are reported in text. Variable abbreviations used in the table are included in parentheses upon first mention of each variable in text. Unless otherwise specified, the associations reported in text were both statistically significant at the .05 level of significance (2-tailed), and interpretable according to interpretability criteria provided by Hinkle et al. (1988). These authors specified that bivariate correlation coefficients equivalent to .3 (i.e., ≥ .25, < .35) represent a low extent of association, .5 (i.e., ≥ .45, < .55) represent a moderate extent of association, whereas correlation coefficients equivalent to .7 (i.e., ≥ .65) are considered a high extent of association. In the interests of greater clarity upon interpretation, the midpoints within this range are considered to be .4 (i.e., ≥ .35, < .45) representing a low-to-moderate extent of association, and .6 (i.e., ≥ .55, < .65) representing a moderate-to-high extent of association. Given the focus upon replication of model performance between samples, a degree of latitude was allowed for relationships that were statistically significant in both samples yet failed to meet interpretability criteria in sample one (the smaller sample). Such findings were interpreted as low consistent relationships.

4.3.1 Demographic Variables

While none of the demographic variables held consistent interpretable relationships with any of the measures of psychological wellbeing (see Table 4.2), there were two demographic variables that were significantly inter-correlated. As would be expected, a

high positive association was found between length of tenure (*Tenure*) and time in industry (*Industry*) in both samples, indicating that respondents reporting more time on the job also reported a longer time in the industry. In addition, the aggregate of the low-to-moderate (sample one) and low (sample two) negative associations between *Age* and education level (*Edu. Level*) suggests a consistent, low-to-moderate relationship. This finding suggests that younger respondents tended to report higher education levels than older respondents, to a low-to-moderate extent. Opportunities to stay in school longer were perhaps more available to the younger generation of respondents, owing to progressive changes in social expectations and the lower access to this type of employment without higher education levels.

4.3.2 Job Involvement Variables (Sample Two only)

4.3.2.1 Inter-relationships

As Table 4.2 shows, preferred hours (*Pref. Hrs*) held a low-to-moderate negative association with length of tenure. To a low-to-moderate extent, where respondents reported having been in the job for a greater number of months (*Tenure*), they also reported a preference for working fewer hours per week. In addition, a low negative association was found between the difference between actual and preferred work hours (*Diff. Hrs*) and job attachment, implying that where respondents were working more than their preferred number of hours per week, they also reported lower attachment to their job.

Job entrapment held moderate-to-high negative associations with job attachment and projected job stay. Given the magnitude of these associations a moderate to high level of confidence may be placed in the interpretation that where respondents reported feelings of being trapped in their job by the lack of alternative employment opportunities they also tended to report lower job attachment and make shorter projections of tenure.

Table 4.2: Pearson bivariate correlations between all continuous variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1. Age	-	-.41^	.17	.06	-	-	-	-	-	-	-.08	-.09	.03	.25*	.04	.02	.01	.01	-.02	.10	-.01	.17	.03	.07	.14	.29*	.03
2. Edu. Level	-.32†	-	-.18	.09	-	-	-	-	-	-	.08	-.06	-.12	-.32†	-.02	.16	.01	-.18	-.01	-.15	.10	-.31*	.01	-.23	-.19	-.25	-.03
3. Tenure	.25†	-.02	-	.78^	-	-	-	-	-	-	-.03	-.15	-.15	-.12	-.16	-.01	-.09	-.06	.15	-.20	-.08	.02	.09	-.15	-.20	-.08	-.17
4. Industry	.19*	-.14	.83^	-	-	-	-	-	-	-	-.05	-.12	-.09	-.04	-.20	-.11	-.03	-.04	.20	-.12	-.11	-.18	-.01	-.07	-.19	-.09	-.21
5. Pref. Hrs	-.14	-.12	-.38^	-.26†	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Diff. Hrs	-.10	.11	-.01	.07	n/a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Job Attach.	.20*	-.19	-.04	.01	.11	-.30†	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Job Entr't.	-.15	-.22*	.19	.16	.18	.16	-.63^	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Proj. Stay	.19	-.18	-.05	-.01	.19	-.14	.69^	-.66^	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Ten. Com.	.20*	-.22*	-.11	-.06	.19	-.21	.86^	-.88^	.90^	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. GHQ12	-.18	-.17	.23*	.21*	-.18	-.01	-.21*	.38^	-.18	-.30†	-	-.32†	-.43^	-.14	-.32†	-.38†	-.34†	-.07	-.02	-.34†	-.45^	-.21	-.50^	-.32†	-.22	-.36†	-.35†
12. TLS	.05	.08	-.16	-.17	.01	.17	.11	-.34^	.09	.21*	-.55^	-	.20	-.01	.43^	.22	.46^	.33†	.34†	.36†	.42^	.24	.44^	.30*	.13	.23	.49^
13. MSQ-SF	.16	-.19	-.18	-.11	.27*	-.02	.51^	-.66^	.62^	.69^	-.40^	.31^	-	.37†	.46^	.41^	.41^	.11	.02	.36†	.51^	.39†	.53^	.39†	.57^	.59^	.44^
14. Activity	.24*	-.17	.10	.02	.02	.04	.17	-.23*	.25†	.25†	-.14	.02	.31^	-	.13	.38†	.09	.34†	.02	.13	.29*	.68^	.14	.11	.33†	.13	.14
15. Contact	.02	-.07	-.26†	-.26†	.04	.13	.05	-.21*	.16	.17	-.30†	.25†	.40^	.17	-	.33†	.14	.07	.16	.40^	.30*	.27*	.31*	.40^	.43^	.53^	.94^
16. Purpose	.28†	-.05	-.07	-.09	.18	-.15	.18	-.35^	.28†	.32^	-.31†	.15	.41^	.20*	.30†	-	.30*	.22	.03	.26*	.79^	.37†	.60^	.18	.33†	.20	.36†
17. Status	.12	-.06	-.20*	-.19*	.12	-.01	.13	-.33^	.16	.25†	-.46^	.44^	.44^	.17	.44^	.38^	-	.24	.18	.53^	.81^	.12	.66^	.21	.18	.18	.22
18. Time	.17	-.10	.11	.10	-.13	.02	.05	-.05	.06	.06	-.08	.12	.01	.27†	.12	.21*	.20*	-	.01	.23	.29*	.51^	.30*	-.05	.05	-.08	.10
19. Money	.01	.13	.08	.01	-.02	.06	-.23*	.08	-.16	-.17	-.13	.32^	-.07	-.09	.15	.01	.25†	.08	-	.14	.13	.04	.11	.03	-.09	.01	.20
20. Phy. Sec.	.11	.07	-.27†	-.28†	.40^	-.07	.03	-.30†	.11	.18	-.33^	.35^	.39^	.07	.15	.17	.47^	-.18	.06	-	.49^	.13	.37†	.29*	.36†	.19	.40^
21. VSP	.24*	-.07	-.16	-.17	.17	-.09	.19	-.41^	.26†	.34^	-.45^	.36^	.50^	.22	.44^	.81^	.85^	.25†	.16	.39^	-	.30*	.77^	.25	.31*	.24	.36†
22. Goals	.15	-.19	.11	.11	-.07	-.09	.14	-.14	.11	.14	.04	-.02	.12	.59^	.14	.25*	.06	.51^	-.11	-.15	.18	-	.31*	.24	.42^	.25*	.22
23. Env. Cla.	.26†	.01	-.08	-.09	.04	.17	.20*	-.34^	.24†	.31^	-.50^	.47^	.42^	.28†	.38^	.46^	.69^	.30†	.17	.32^	.70^	.12	-	.27*	.27*	.31*	.37†
24. Control	.09	-.10	-.002	.08	.08	.03	.28†	-.34^	.30†	.35^	-.33^	.30†	.46^	.23*	.30^	.14	.40^	-.06	.08	.30†	.33^	-.11	.41^	-	.30*	.43^	.38†
25. Skill	.02	-.23*	-.26†	-.15	.09	-.05	.29†	-.45^	.38^	.44^	-.23*	.26†	.52^	.07	.20*	.47^	.20*	.06	-.06	.13	.40^	.12	.28†	.40^	-	.50^	.44^
26. Variety	.16	-.21	-.11	-.06	.02	.08	.30†	-.38^	.41^	.42^	-.22*	.04	.53^	.08	.32^	.21*	.13	-.02	-.06	.05	.20*	.18	.13	.40^	.48^	-	.45^
27. Int. Cont.	.05	-.13	-.31^	-.28†	.04	.15	.04	-.25†	.18	.19*	-.36^	.33^	.43^	.15	.94^	.31^	.47^	.14	.17	.19	.47^	.15	.42^	.35^	.27†	.42^	-

Note. Upper triangle represents sample one data, shaded lower triangle represents sample two data. The significance levels of all coefficients are two-tailed.

*p < .05, †p < .01, ^p< .001.

Projected job stay also held a high positive association with job attachment, strongly suggesting that where respondents reported low job attachment, they also reported shorter projections of tenure.

4.3.2.2 Relationships with Psychological Wellbeing

Job attachment (*Job Attach.*) and projected job stay (*Proj. Stay*) were positively related to job satisfaction (*MSQ*) to a moderate and moderate-to-high extent, respectively (see Table 4.2). These data suggest that where respondents reported lower job satisfaction, they also felt less attached to their work role and tended to make shorter projections towards a future in their current job. Job attachment and projected job stay were not related to psychological distress (*GHQ12*) or life satisfaction (*TLS*).

Job entrapment (*Job Entr't.*) was positively associated with psychological distress to a low-to-moderate extent, and negatively associated with life satisfaction to a low extent, and highly associated with job satisfaction (see Table 4.2). Where respondents felt trapped in their current work situation by the lack of alternative employment opportunities they tended to report lower job satisfaction to a high extent, more symptoms of psychological distress to a low to moderate extent and were less satisfied with their lives, to a low extent.

Although tenure commitment (*Ten. Com.*) held a low negative association with psychological distress it was highly positively associated with job satisfaction (See Table 4.2). To a low extent, where respondents reported more symptoms of psychological distress they also tended to report lower commitment to remain in the job. The more compelling finding was the high positive association between tenure commitment and job satisfaction, suggesting that where respondents reported lower job satisfaction they also reported lower commitment to remaining in the job. Accordingly,

hypothesis six, that commitment to ongoing tenure would be positively related to job satisfaction, was supported.

4.3.3 Psychological Wellbeing Variables

As Table 4.2 shows, psychological distress was negatively associated with life and job satisfaction in both samples. On aggregate[6] of the low (sample one) and moderate-to-high (sample two) negative associations between psychological distress and life satisfaction, a consistent, low-to-moderate relationship was interpreted between these variables. A consistent, low-to-moderate relationship was also interpreted between psychological distress and job satisfaction, following an aggregation of the low-to-moderate negative associations found between these variables. To a low-to-moderate extent, where respondents in either sample reported lower life or job satisfaction, they also reported higher levels of psychological distress. Despite a low positive association between life and job satisfaction in sample two, no significant association was observed for these variables in sample one. Therefore, the association between life and job satisfaction was not considered to be a consistently interpretable relationship.

4.3.4 The ACE Model

4.3.4.1 Bivariate Inter-relationships

Table 4.2 shows that in both samples, *Collective Purpose* (*Purpose*) held low positive associations with *Social Contact* (*Contact*) and *Social Status* (*Status*). These consistent relationships were interpreted such that to a low extent, where operators reported fewer opportunities for social contact per day, they also tended to report a lower contribution to community, and a lower perceived social standing.

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[6] The term 'aggregate' is used here to represent an averaging of the magnitudes of association detected in each sample, per relationship. This aggregate is then considered in light of the correlation interpretation criteria provided by Hinkle et al. (1988).

While a significant correlation was not found between *Social Contact* and *Social Status* in sample one, a low-to-moderate positive correlation was detected between these variables in sample two (See Table 4.2). Where sample two respondents indicated fewer opportunities for social contact during the day, they also perceived lower social standing. The variability between similar samples however, suggests that these findings do not constitute a consistent relationship.

As shown in Table 4.2, a low-to-moderate positive association was found between *Collective Purpose* and *Activity* in sample one. Despite a weak and statistically significant positive association, the same association failed to meet the interpretability criterion in sample two. This suggests that the larger coefficient in sample one may have been an artefact of sample size (e.g., De Vaus, 2002) and that the association is actually weak, albeit consistently significant across samples. While such a relationship is intuitively appealing in the interpretation that where respondents reported greater experience of a busy schedule of activity during the day, they also indicated a higher perceived contribution to community, these data suggest that it should not be considered a consistently interpretable relationship.

A low positive association between *Activity* and *Time Structure* (*Time*) was also demonstrated in both samples (see Table 4.2). To a low extent, where respondents reported a higher demand upon their availability during the day, they also reported the greater experience of a busy daily task schedule. While this finding is intuitively appealing, confidence in the interpretation of this finding is undermined by the low internal consistency of these scales.

4.3.4.2 Relationships Between ACE and Psychological Wellbeing Variables

4.3.4.2.1 Psychological distress.

Negative associations between psychological distress and *Collective Purpose*, *Social Status*, and *Social Contact* were found in both samples (see Table 4.2). Further, no statistically significant[7] between-samples differences were detected in the magnitudes of the respective associations. While low in sample one, a low to moderate negative association was found between *Social Status* and psychological distress in sample two. On aggregate of the magnitudes of these associations, a consistent relationship was interpreted such that to a low-to-moderate extent, where respondents reported lower levels of social status, they also indicated higher levels of psychological distress. On aggregate, consistent yet low relationships were interpreted between psychological distress and *Collective Purpose* and *Social Contact*. These findings suggest that to a low extent, fewer opportunities for social contact throughout the day and a lower perceived contribution to community were associated with higher levels of psychological distress. Neither *Activity* nor *Time Structure* was associated with psychological distress.

4.3.4.2.2 Life satisfaction.

A moderate positive association between life satisfaction and *Social Status* was found in both samples (see Table 4.2), interpreted as a consistent, moderate relationship. To a moderate extent, where respondents reported lower social standing, they also reported lower life satisfaction. Upon perusal of Table 4.2, it is evident that the association between life satisfaction and *Social Contact* was less consistent. While a low-to-moderate positive association was found between these variables in sample one, a low positive association was found in sample two. While the finding in sample two

[7] Determined by Fisher's *z* transformations and consideration of confidence intervals based on standard normal scores.

was significantly weaker ($z = 2.08 > z_{crit} = 1.96$) than sample one, the aggregate of these findings suggests a low consistent relationship – substantially less cogent than the data in sample one suggests. Indeed, the magnitude of association found for this relationship in sample one may have been an artefact of sample size[8] where larger magnitudes of association are more likely in smaller samples (e.g., De Vaus, 2002). However, the interpretation was made that to a low extent, where respondents reported fewer opportunities for social contact during the day, they also reported lower life satisfaction.

Although a low positive association was also found between *Time Structure* and life satisfaction in sample one, no association was detected between these variables in sample two. Consequently, it was interpreted that no consistent relationship exists between these variables. Neither *Collective Purpose* nor *Activity* was related to life satisfaction in either sample.

4.3.4.2.3 Job satisfaction.

On aggregate, the magnitudes of association between *Social Status* and job satisfaction in both samples (see Table 4.2) suggest a consistent, moderate positive relationship between these variables. To a moderate extent, fewer experiences leading to *Social Status* were associated with lower job satisfaction. In addition, low-to-moderate positive associations where detected between job satisfaction and *Social Contact* and *Collective Purpose* in both samples (See Table 4.2). To a low-to-moderate extent, respondents tended to report lower job satisfaction where they also reported fewer opportunities for social contact in their daily routine, or perceived a lesser involvement in a collective contribution to their community.

In addition, *Activity* held a low positive association with job satisfaction in both samples (see Table 4.2). To a low extent, where respondents indicated a higher level of

[8] Higher magnitudes of association are more probable in smaller samples (see De Vaus, 2002).

activities scheduled per day, they also tended to report higher job satisfaction. However, the low internal consistency of this ACE scale limits the confidence that can be placed in this interpretation. No significant association was found between *Time Structure* and job satisfaction in either sample.

4.3.5 The PEI Model

4.3.5.1 Bivariate Inter-relationships

The pattern of association among the PEI variables was largely consistent between samples as shown in Table 4.2. Bivariate associations within the PEI model are reported in the thematic groups established earlier.

4.3.5.1.1 Environmental integrity.

Money was not related to any other PEI in either sample (see Table 4.2). By contrast, low-to-moderate (sample one) and moderate (sample two) positive associations were found between *Physical Security* (*Phy. Sec.*) and *Valued Social Position* (*VSP*). On aggregate of the magnitude of these associations, a consistent, low-to-moderate relationship was interpreted such that to a low-to-moderate extent, where respondents reported a lower perceived social standing and involvement in a collective purpose, they also reported lower levels of comfort, safety and security.

The aggregate of associations reported with *Physical Security* and *Environmental Clarity* (*Env. Cla.*) and *Opportunities for Control* (*Control*) in Table 4.2 suggest that low consistent relationships exist between these variables. To a low extent, where respondents reported lower perceived control over their work environment or lower clarity for expectations at work, they also reported lower levels of comfort, security and safety within their environment.

Although, low-to-moderate positive associations were found for *Physical Security* and *Opportunities for Interpersonal Contact* (*Int. Cont.*) and *Opportunities for Skill Use* (*Skill*) in sample one, none of these associations were significant in sample two (see Table 4.2). Accordingly, these findings were not considered consistent, interpretable relationships.

4.3.5.1.2 Social reference.

The strongest relationship detected among the PEI scales was found between *Valued Social Position* and *Environmental Clarity*. A high positive association was found between these variables in both samples. Where respondents reported low clarity within the work context, they also reported a lower perceived contribution to community and lower social standing. While the strength of this replicated finding provides a high level of confidence in the interpretation, it also has the potential to undermine multiple regression analyses that include both variables due to their multicollinearity (De Vaus, 2002), an issue addressed in Chapter Five.

Valued Social Position also held a low-to-moderate (sample one) and moderate (sample two) positive association with *Opportunities for Interpersonal Contact* (see Table 4.2). On aggregate of the magnitudes of these associations, a low-to-moderate consistent positive relationship was interpreted. Similarly, a low-to-moderate consistent positive relationship was interpreted following aggregate of the associations between *Valued Social Position* and *Opportunities for Skill Use*. Where respondents reported fewer opportunities for social contact, or fewer opportunities for the use and extension of existing skills, they also tended to report lower social standing and perceived contribution to community.

Table 4.2 also shows that in both samples, *Opportunities for Interpersonal Contact* held a low-to-moderate positive association with *Environmental Clarity*. This

consistent relationship was interpreted such that to a low-to-moderate extent, where respondents reported fewer opportunities for social contact during the day, they also tended to report lower clarity within the work context. On aggregate of a low-to-moderate (sample one) and a low (sample two) positive association between *Opportunities for Interpersonal Contact* and *Opportunities for Control* (see Table 4.2), a low consistent relationship was interpreted between these variables. To a small extent, where respondents indicated fewer opportunities for social contact, they also tended to report lower perceived control over the order and process of work tasks.

In addition, *Opportunities for Interpersonal Contact* was positively associated with *Variety* to a low-to-moderate extent in both samples. This consistent relationship was interpreted such that to a low-to-moderate extent, less diversity in the work routine was associated with fewer opportunities for social contact during the day. On aggregate, the low-to-moderate (sample one) and low (sample two) positive associations between *Opportunities for Interpersonal Contact* and *Opportunities for Skill Use* were interpreted as a low, yet consistent positive relationship. To a small extent, where operators reported fewer opportunities for social contact during the day they also reported a lower level of skill utilisation and skill development. However, given the questionable internal consistency of *Opportunities for Skill Use*, only a modest degree of confidence can be placed in this interpretation.

Despite the low positive association found between *Valued Social Position* and *Opportunities for Control* in sample two, the same relationship was not significant in sample one (see Table 4.2). Therefore, a consistent and interpretable relationship was not found between these variables.

4.3.5.1.3 Job demands.

Although *Externally Generated Goals* (*Goals*) held low positive associations with both *Environmental Clarity* and *Valued Social Position* (see Table 4.2), and a low-to-moderate positive association with *Opportunities for Skill Use* in sample one, these associations were not replicated in sample two. Therefore, *Externally Generated Goals* did not hold a consistent relationship with any other PEI scale.

4.3.5.1.4 Job scope.

On aggregate of the low (sample one) and low-to-moderate (sample two) positive association found between *Environmental Clarity* and *Opportunities for Control* (see Table 4.2), it was interpreted that a low consistent relationship exists between these variables. To a small extent, where respondents indicated lower perceived control over the order and process of work tasks, they also reported less confidence in knowing how to meet work expectations.

A low consistent relationship was also interpreted following the low positive associations detected between *Environmental Clarity* and *Opportunities for Skill Use* in both samples (see Table 4.2). To a small extent, where operators reported a low clarity for expectations within the work environment, they also indicated fewer opportunities for the use and extension of their skills. Despite a low positive association between *Environmental Clarity* and *Variety* in sample one, a significant association was not found between these variables in sample two. Therefore, no consistent relationship was found between these variables.

Opportunities for Control also held positive associations with *Variety* and *Opportunities for Skill Use* in both samples (see Table 4.2). Low-to-moderate positive associations were found between *Opportunities for Control* and *Variety* in both samples. A consistent relationship, the interpretation was made that to a low-to-

moderate extent, where respondents reported low control over the order and process of their work, they also reported low diversity within the work role. On aggregate of the low (sample one) and low-to-moderate (sample two) positive associations found between *Opportunities for Control* and *Opportunities for Skill Use*, a low-to-moderate consistent relationship was interpreted. To a low-to-moderate extent, where respondents indicated low perceived control over their work routine, they also indicated fewer opportunities for the use and extension of existing skills.

As might be expected, *Opportunities for Skill Use* held a moderate, positive association with *Variety* in both samples (see Table 4.2). This consistent relationship suggests that to a moderate extent, where respondents reported fewer opportunities for the use and extension of skills, they also reported less variety in the work routine. This relationship was the strongest among the job scope PEI variables.

4.3.5.2 Bivariate Relationships with Psychological Wellbeing

4.3.5.2.1 Psychological distress.

Five of the PEI scales were consistently related to psychological distress. *Environmental Clarity* and *Valued Social Position* held moderate negative associations with psychological distress in both samples. These consistent negative relationships strongly suggest that where respondents reported low clarity for work expectations, low perceived social standing and low involvement in a collective contribution to community, they also indicated higher psychological distress.

In addition, a low-to-moderate negative association was found between psychological distress and *Opportunities for Interpersonal Contact* in both samples (see Table 4.2). The consistent relationship between these variables was interpreted such that to a low-to-moderate extent, where respondents reported fewer opportunities for social contact during the day, they also reported higher psychological distress.

Consistent relationships were also interpreted for the low negative associations between psychological distress and *Opportunities for Control* and *Physical Security*, detected in both samples (see Table 4.2). To a low extent, where respondents reported lower perceived control over their work routine or where they reported lower comfort, safety or security within their environment, they also indicated higher psychological distress.

While a low-to-moderate negative association was found between *Variety* and psychological distress in sample one, the association between these variables did not meet the interpretability criterion in sample two (see Table 4.2). Consequently, the interpretation was made that no consistent relationship exists between these variables. Similarly, no consistent relationships were detected between psychological distress and either *Money* or *Externally Generated Goals* or *Opportunities for Skill Use*.

4.3.5.2.2 Life satisfaction.

Six of the PEI scales held consistent relationships with life satisfaction. On aggregate of the magnitudes of association, the low-to-moderate (sample one) and moderate (sample two) positive associations between life satisfaction and *Environmental Clarity* (see Table 4.2) were interpreted as a moderate positive relationship. To a moderate degree, where respondents reported less clarity for work expectations, they also reported lower life satisfaction.

The aggregate of the moderate (sample one) and low (sample two) positive associations detected between life satisfaction and *Opportunities for Interpersonal Contact* were considered to represent a consistent low-to-moderate relationship. Consistent low-to-moderate relationships were also interpreted from the low-to-moderate positive associations detected between life satisfaction and *Valued Social Position* and *Physical Security* in both samples. All three consistent relationships suggest that to a low-to-moderate extent, where respondents indicated fewer

opportunities for social contact during the day, perceived a low involvement in a collective contribution to community and lower social standing, or indicated low levels of comfort, safety and security within their work environment, they also tended to report lower life satisfaction.

Money and *Opportunities for Control* held low positive associations with life satisfaction in both samples (see Table 4.2). These consistent relationships were interpreted such that to a low extent, where respondents reported low availability of money, or lower perceived control over the work routine, they also tended to report lower life satisfaction. No consistent relationships with life satisfaction were detected for *Externally Generated Goals*, *Opportunities for Skill Use* or *Variety*.

4.3.5.2.3 Job satisfaction.

Seven of the PEIs were consistently related to job satisfaction. On aggregate of the magnitudes of association, the moderate-to-high (sample one) and moderate (sample two) positive associations between job satisfaction and *Variety* and *Opportunities for Skill Use* were interpreted as consistent, moderate-to-high relationships. To a moderate-to-high extent, where respondents reported limited diversity, depth and novelty in the work routine, or fewer opportunities for the use and extension of existing skills, they also reported lower job satisfaction.

The moderate positive associations between job satisfaction and *Valued Social Position* found in both samples (see Table 4.2) were considered to represent a consistent moderate relationship. Similarly, upon aggregation of the moderate (sample one) and low-to-moderate (sample two) positive associations found between job satisfaction and *Environmental Clarity*, a consistent moderate relationship was interpreted between these variables. These consistent relationships suggest that to a moderate extent, where respondents indicated low clarity for expectations within the work environment, low

perceived social standing and low involvement in a collective contribution to community, they also reported low job satisfaction.

While *Opportunities for Control* held low-to-moderate (sample one) and moderate (sample two) positive associations with job satisfaction, the aggregation of these findings suggests a consistent low-to-moderate relationship. Consistent low-to-moderate relationships were also interpreted from the low-to-moderate positive associations detected between job satisfaction and *Opportunities for Interpersonal Contact* and *Physical Security* in both samples (see Table 4.2). These replicated relationships suggest that to a low-to-moderate extent, where respondents reported low control over their work routine, lower comfort, safety and security within their work environment, or fewer opportunities for social contact during the day, they also tended to report lower job satisfaction.

Despite a significant low-to-moderate positive association between *Externally Generated Goals* and job satisfaction in sample one, the same association was not replicated in sample two (see Table 4.2). Therefore, no consistent relationship was interpreted between these variables. Somewhat surprisingly, *Money* was not related to job satisfaction in either sample.

4.4 Summary of Findings: Descriptive and Correlation Analyses

The most striking finding in the descriptive and correlation analyses was the similarity between samples one and two. Both samples were closely matched on demographic variables and reported similar levels of experience within the ACE and PEI variables. Respondents in both samples were similarly affected by symptoms of psychological distress, although they were significantly more symptomatic than normative data. Approximately one third of respondents were at risk for minor psychiatric morbidity. Compared to normative data, respondents in both samples were

also significantly less satisfied with their jobs, particularly the operational characteristics involved. Despite these findings, respondents in both samples were satisfied with their lives, significantly more so than comparison data. Accordingly, hypothesis one, that the call centre operators in the present study would be report lower levels of psychological wellbeing compared to normative data, was partially supported.

The similarities between samples persisted through the bivariate correlation analyses, with a notable prominence of social reference in the associations between the ACE model variables and psychological wellbeing. A similar finding was evident in the PEI model, although variables reflecting job scope were also prominent in respect of job satisfaction. Refer to Table 4.3 for a summary of consistent relationships (p.110).

Compared to those sample two respondents who preferred to work their current schedule, those respondents preferring to work fewer hours than the current schedule reported significantly lower reported levels of job satisfaction, a finding that supported hypothesis five. The strong positive association between job satisfaction and tenure commitment supported hypothesis six.

Table 4.3: Consistent bivariate relationships between psychological wellbeing and model variables

Measure of Psychological Wellbeing	Model Variable	Strength of Association
Psychological Distress	ACE Model	
(GHQ12 Likert)	Social Status	Low-moderate
	Collective purpose	Low
	Social Contact	Low
	PEI Model	
	Environmental Clarity	Moderate
	Valued Social Position	Moderate
	Opportunities for Interpersonal contact	Low-moderate
	Opportunities for Control	Low
	Physical Security	Low
Life Satisfaction	ACE Model	
(TLS)	Social Status	Moderate
	Social Contact	Low
	PEI Model	
	Environmental Clarity	Moderate
	Valued Social Position	Low-moderate
	Opportunities for interpersonal contact	Low-moderate
	Physical Security	Low-moderate
	Opportunities for Control	Low
	Money	Low
Job Satisfaction	ACE Model	
(MSQ-SF General Scale)	Social Status	Moderate
	Social Contact	Low-moderate
	Collective Purpose	Low-moderate
	Activity	Low
	PEI Model	
	Variety	Moderate-High
	Opportunities for Skill Use	Moderate-High
	Valued Social Position	Moderate
	Environmental Clarity	Moderate
	Opportunities for Control	Low-moderate
	Physical Security	Low-moderate
	Opportunities for Interpersonal Contact	Low-moderate

Note. The above relationships were in a negative direction for psychological distress, and a positive direction for life and job satisfaction.

CHAPTER FIVE: PREDICTING PSYCHOLOGICAL WELLBEING

5.1 Overview

This chapter presents multiple regression analyses designed to predict the levels of psychological wellbeing reported in Chapter Four. Simultaneous and sequential multiple regression analyses investigate the ACE and PEI model predictions of psychological wellbeing to specifically address hypotheses two and three, that each model would be significantly predictive of psychological wellbeing. In addition, the relative contributions of individual variables to their respective entire model predictions of psychological distress, life and job satisfaction are also considered. These analyses were replicated in two independent samples to provide an indication of the consistency of model predictions.

Extending the analyses for the larger sample two, a statistical regression procedure is used to determine the most parsimonious set of linear predictor variables per measure of psychological wellbeing. A cross-validation procedure is then used to determine the between-samples stability of these reduced model predictions. Finally, the strength and stability of both model predictions of psychological wellbeing are compared, thereby addressing hypothesis four, that compared to ACE, the PEI model would be a better predictor of psychological wellbeing.

5.1.1 Multiple Regression Analyses

Simultaneous and sequential regression models were used in the development of multiple regression analyses across two methods in sample one. Following a replication of these methods, a third method of analysis was added to the investigation of sample two to find the most parsimonious set of linear predictors per model prediction of psychological wellbeing.

5.1.1.1 Multiple Regression Method I

Addressing concerns that age (e.g., Creed & Watson, 2003; De Jonge & Schaufeli, 1998; Organ & Near, 1985) gender (e.g., Hackett, 1989; Karasek & Theorell, 1990; Wright, Bengtsson, & Frankenberg, 1994) and length of tenure (e.g., Bruck et al., 2002) may confound the prediction of psychological wellbeing, these variables were included at Method I to determine their combined extent of influence in the regression analyses. Consequently, Method I involved a regression equation in which each dependent variable (psychological distress, life and job satisfaction) was regressed upon each set of predictor variables per model, together with age, gender and tenure. The purpose of Method I was to determine the influence of these demographic variables upon each entire model prediction of psychological wellbeing.

5.1.1.2 Multiple Regression Method II

In Method II, the first sequential step in the analyses involved a re-calculation of a simultaneous multiple regression without the inclusion of the demographic variables. Of particular interest was the change in R^2 from Method I to Method II that may be attributable to the removal of these potentially confounding demographic variables. Where reference is made to findings for the entire ACE model, these refer to the results reported at Method II.

5.1.1.3 Multiple Regression Method III

Method III incorporated a 'Backwards Deletion' statistical regression procedure. This procedure was introduced to identify the most parsimonious set of linear predictors for the model predictions of psychological wellbeing in sample two. Starting with the set of predictors used in an entire model prediction of psychological wellbeing, the Backwards Deletion procedure systematically removes the predictor least associated with the

dependent variable and recalculates the regression equation following the exclusion of this predictor. The step-by-step deletion of predictors continues until the significance level (*p*) of the standardised regression coefficients (β) for the remaining predictors becomes less than .10 (e.g., Hair, Anderson, Tatham, & Black, 1998).

The Backwards Deletion procedure was chosen for Method III due to the inter-relationships between model variables identified in Chapter Four. The 'Forwards Inclusion' statistical regression procedure was not considered appropriate, as that technique systematically includes variables that relate strongly to the dependent variable without the initial context of the other variables. Similarly, the 'Stepwise' procedure was considered inappropriate for the purpose of these analyses, because this procedure selects predictors as per the 'Forwards Inclusion' method, before excluding previously selected predictors if they fail to remain significant upon the addition of subsequent predictors (e.g., Hair et al., 1998). Therefore, the stepwise procedure does not adequately account for relationships among predictors within a model prediction.

5.1.1.4 Cross-validation procedure

A cross-validation procedure was implemented to determine the stability of prediction from the reduced set of predictors (hereafter referred to as the reduced model), obtained through Backwards Deletion at Method III. Consistent with the 'holdout' (e.g., Gutierrez-Osuna, 2005) or 'test set' cross-validation' procedure[1] (e.g., Moore, 2001), each reduced model prediction of a given measure of psychological wellbeing derived from sample two (i.e., the 'training set') is applied to the observed values of the predicted variable in sample one (i.e., the 'test set'). The reduced model prediction of the observed values of the predicted variable in sample one is reported in terms of R^2, and may be directly compared to the R^2 of the prediction by the reduced model in sample two. The

[1] The difference between the test set procedure and the present study is that there are already two samples – no partitioning of one large sample was required.

expectation is that the R^2 values derived from application of the reduced model in prediction of a given measure of psychological wellbeing in the training and test sets will be approximately similar, thereby cross-validating the reduced model. Figural representation is also included to demonstrate how well the predicted and observed values match, in respect of their prediction of each measure of psychological wellbeing.

In addition to cross-validation of the reduced model prediction, the *Adjusted* R^2 values for the reduced models are compared to those obtained using the entire models in both samples at Method II. This is done to determine whether the reduced models could be considered adequately representative of the entire model predictions of a given measure of psychological wellbeing.

5.2 The Access to Categories of Experience (ACE) Model Prediction of Psychological Wellbeing

5.2.1 Multivariate Data Screening

All five ACE scales were screened for their multivariate association with each measure of psychological wellbeing. While no multivariate outliers were detected in sample one, outliers were detected upon inspection of regression plots for the ACE model prediction of both life, and job satisfaction in sample two. Two cases were subsequently excluded from the ACE model analyses: one case from each of the regression equations for life and job satisfaction.

Although significant positive correlations were found among the ACE scales in Chapter Four, inspection of the Variable Inflation Factor (VIF) and Tolerance Estimate (TE) per predictor variable fell within normal limits (i.e., VIF < 5, TE > .2; De Vaus, 2002), in each regression equation. Therefore the regression analyses for the ACE model were not compromised by multicollinearity. Further, plots of the standardised residuals against the predicted values revealed no systematic relationship, consistent with the

assumption of linearity. The normal probability plot of the standardised residuals also indicated a normal distribution, consistent with the assumption of normality. On the whole, no violations of the assumptions underlying the regression analyses for the ACE model were apparent.

5.2.2 The ACE Model Prediction of Psychological Distress

The inclusion of age, gender and tenure in Method I resulted in these demographic variables contributing 4.7% (sample one) and 0.8% (sample two) to the explanation of variance in psychological distress. Considering the change in R^2 from Method I to II, this contribution was not statistically significant in either sample one $F(3, 55) = 1.07$, $p = .37$, or sample two $F(3, 106) < 1$. It was therefore concluded that the demographic variables did not confound the ACE model prediction of psychological distress in either sample.

Excluding the demographic variables at Method II, the ACE model was found to explain 23.4% of the variance in reported levels of psychological distress in sample one $F(5, 52) = 3.17$, $p = .01$, and 26.0% of the variance in reported levels of psychological distress in sample two $F(5, 104) = 7.31$, $p < .001$. No significant between-samples difference was found for the ACE model predictions of psychological distress ($CI_{95\%} = +0.19$ to -0.25)[2].

Reviewing the relative contributions of individual ACE variables to the ACE model prediction of psychological distress (see Table 5.1), a slightly different pattern emerged in each sample. Although *Social Contact* and *Social Status* were equally prominent (although not to a statistically significant degree) in sample one, only *Social Status* provided a statistically significant unique contribution to the ACE model prediction of psychological distress in sample two. *Collective Purpose* provided the second largest contribution to the

[2] Confidence limits (where $\alpha = .05$) were calculated using the standard error of the between-samples difference in R^2. Where the Confidence Interval does not include zero, the difference is significant. See Cohen, Cohen, West, & Aiken (2003, p. 88) for a review of this procedure.

ACE model prediction of psychological distress in sample two, a contribution that approached significance. While not statistically significant in sample one, the magnitude of the contribution made by *Collective Purpose* was identical in both samples (β = -.19), suggesting that this variable was consistently related to the ACE model prediction of psychological distress to a modest extent. In both samples, a lower perceived social standing and (to a lesser extent) lower perceived involvement in a collective contribution to community was associated with higher levels of psychological distress. *Activity* and *Time Structure* did not provide significant unique contributions to the ACE model prediction of psychological distress in either sample.

In sample two, the best set of linear ACE model predictors of psychological distress derived from Method III comprised *Social Status* and *Collective Purpose* (see Table 5.1). This reduced ACE model accounted for a significant proportion of the variance in reported levels of psychological distress $F(2, 107) = 18.02$, $p < .001$. Comparing *Adjusted* R^2 values (owing to the different numbers of predictors) in Table 5.1, the reduced ACE model prediction of psychological distress in sample two was marginally higher than the finding for the entire ACE model in both samples. The reduced ACE model prediction of psychological distress found in sample two was at least equivalent to the entire ACE model predictions of psychological distress in either sample.

Table 5.1: Sequential, Simultaneous and Statistical Regression Analyses for the ACE model Prediction of Psychological wellbeing

	Sample One (*N* = 66) Psychological Wellbeing									Sample Two (*N* = 111) Psychological Wellbeing								
	Psychological Distress (GHQ12)			Life Satisfaction (TLS)			Job Satisfaction (MSQ-SF)			Psychological Distress (GHQ12)			Life Satisfaction (TLS)			Job Satisfaction (MSQ-SF)		
Predictor	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*
Method I:																		
Age	-.10	-.76	.45	-.18	-1.69	.10	-.05	-.49	.63	-.06	-.61	.55	-.06	-.60	.55	.09	1.03	.31
Gender	-.20	-1.49	.15	.07	.63	.53	.17	1.45	.16	.05	.53	.60	-.06	-.69	.49	.04	.51	.61
Tenure	-.03	-.24	.81	.10	.86	.39	-.14	-1.20	.24	.07	.71	.48	-.06	-.61	.54	-.13	-1.56	.12
Adj. R^2			*.16*			*.40*			*.39*			*.21*			*.15*			*.31*
Method II:																		
Activity	-.03	-.19	.85	-.24	-1.97	.05	.28	2.20	.03	-.01	-.11	.91	-.06	-.61	.55	.15	1.64	.10
Contact	-.25	-1.89	.06	.39	3.48	.001	.28	2.49	.02	-.08	-.90	.37	.07	.73	.47	.25	2.79	.01
Purpose	-.19	-1.29	.20	.01	.02	.98	.16	1.26	.21	-.19	-1.94	.06	-.08	-.79	.43	.28	3.02	.003
Status	-.25	-1.89	.07	.36	3.27	.002	.35	3.13	.003	-.36	-3.56	.001	.44	4.16	<.001	.18	1.88	.06
Time	.02	.18	.86	.31	2.71	.01	-.15	-1.31	.20	.05	.57	.57	.04	.46	.64	-.15	-1.74	.09
Adj. R^2			*.16*			*.38*			*.39*			*.22*			*.17*			*.30*
Method III:																		
Activity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contact	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.31	3.61	<.001
Purpose	-	-	-	-	-	-	-	-	-	-.20	-2.14	.04	-	-	-	.36	4.24	<.001
Status	-	-	-	-	-	-	-	-	-	-.38	-4.12	<.001	.43	5.02	<.001	-	-	-
Time	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adj. R^2												*.24*			*.18*			*.28*

Note. Method I included demographic and ACE variables, Method II included ACE variables only, Method III is the reduced ACE model derived from the backwards deletion procedure.

Upon cross-validation, the reduced ACE model prediction of psychological distress derived in sample two (R^2 = .25) provided a similar fit to the observed values of psychological distress in sample one (R^2 = .19). In panel A) of Figure 5.1, the scatter of data points and the slight inflection of the bold line (representing the fit between predicted and observed values) confirms a positive linear trend, albeit to a modest extent. Therefore, the reduced ACE model (*Social Status* and *Collective Purpose*) provided a parsimonious representation of the entire ACE model prediction of psychological distress in both samples.

5.2.3 The ACE Model Prediction of Life Satisfaction

The inclusion of age, gender and tenure in Method I resulted in these demographic variables contributing 4.6% (sample one) and 0.9% (sample two) to the explanation of variance in life satisfaction. The change in R^2 from Method I to II was not statistically significant in either sample one $F(3, 55) = 1.47$, $p = .24$), or sample two $F(3, 106) = .39$, $p = .76$. It was therefore concluded that the demographic variables did not confound the ACE model prediction of life satisfaction in either sample.

Excluding the influence of the demographic variables at Method II, the ACE model was found to explain 43.7% of the variance in reported levels of life satisfaction in sample one $F(5, 52) = 8.08$, $p < .001$, yet only 20.4% of the variance in reported levels of life satisfaction in sample two $F(5, 103) = 5.27$, $p < .001$. While both predictions were statistically significant, the size of the between-samples difference in magnitude of R^2 was also significantly different ($CI_{95\%}$ = +0.45 to +0.01). Therefore, the ACE model prediction of life satisfaction was not consistent between samples.

Upon review of the relative contributions of individual ACE scales to the ACE model prediction of life satisfaction in Table 5.1, the consistent findings were that *Social Status* provided significant unique contributions to this prediction and *Collective*

Purpose failed to make a unique contribution in both samples. In both samples, lower perceived social standing was predictive of lower levels of life satisfaction. While *Social Status* provided the only unique contribution to ACE model prediction of life satisfaction in sample two, *Social Contact*, *Activity* and *Time Structure* also provided significant contributions to this prediction in sample one (see Table 5.1). This finding probably accounts for the significant between-samples difference in the overall ACE model prediction of life satisfaction. In sample one, fewer opportunities for social contact and lower perceived social standing were associated with lower levels of life satisfaction. While the finding for *Time Structure* suggests that greater experience of a time-dependent task schedule was associated with greater life satisfaction in sample one, the negative finding for *Activity* suggests that higher levels of activity during the day were associated with lower life satisfaction.

Following the Backwards Deletion procedure applied at Method III, only *Social Status* emerged as a significant predictor of life satisfaction. This reduced ACE model accounted for a significant proportion of variance in reported levels of life satisfaction in sample two $F(1, 107) = 25.17$, $p < .001$. As Table 5.1 shows, the reduced ACE model prediction of life satisfaction in sample two was marginally higher than that found for the entire model in sample two, but much lower than the finding for the entire ACE model in sample one. Therefore, the reduced ACE model may only be considered equivalent to the entire ACE model prediction in sample two.

Upon cross-validation however, the reduced ACE model prediction of life satisfaction provided a similar fit to the observed values of life satisfaction in sample one. The cluster of data points in the scatter plot provided in panel C) of Figure 5.1, suggests convergence upon a positive linear trend between predicted and observed values. Also, considering the gradient of the bold line of best fit in isolation from the

three obvious leverage points towards the lower right aspect of the cluster, it could be expected that the angle for this line would be more acute, providing stronger confirmation of a positive linear trend. Even without removal of these leverage points, the reduced ACE model prediction of life satisfaction derived in sample two (R^2 = .19) still provided a close match to the observed values of life satisfaction in sample one (R^2 = .22). Although the prediction was statistically significant, it is notable that the reduced model actually accounted for a modest proportion of the variance in life satisfaction.

5.2.4 The ACE Model Prediction of Job Satisfaction

The inclusion of age, gender and tenure in the regression equation for Method I resulted in these demographic variables contributing 3.3% (sample one) and 2.2% (sample two) to the explanation of variance in job satisfaction. This contribution was not statistically significant in either sample one $F(3, 53) = 1.00$, $p = .40$, or sample two $F(3, 106) = 1.14$, $p = .34$. Table 5.1 shows no substantial between-samples difference, upon comparison of the *Adjusted* R^2 values from Method I to Method II. Therefore, the demographic variables did not confound the ACE model prediction of job satisfaction in either sample.

Excluding the influence of the demographic variables at Method II, the ACE model was found to explain 44.9% of the variance in reported levels of job satisfaction in sample one $F(5, 50) = 9.69$, $p < .001$, and 33.4% of the variance in reported levels of job satisfaction in sample two $F(5, 103) = 10.35$, $p < .001$. While the ACE model prediction of job satisfaction was lower in sample two, the between-samples difference was not statistically significant ($CI_{95\%}$ = +0.34 to -0.11).

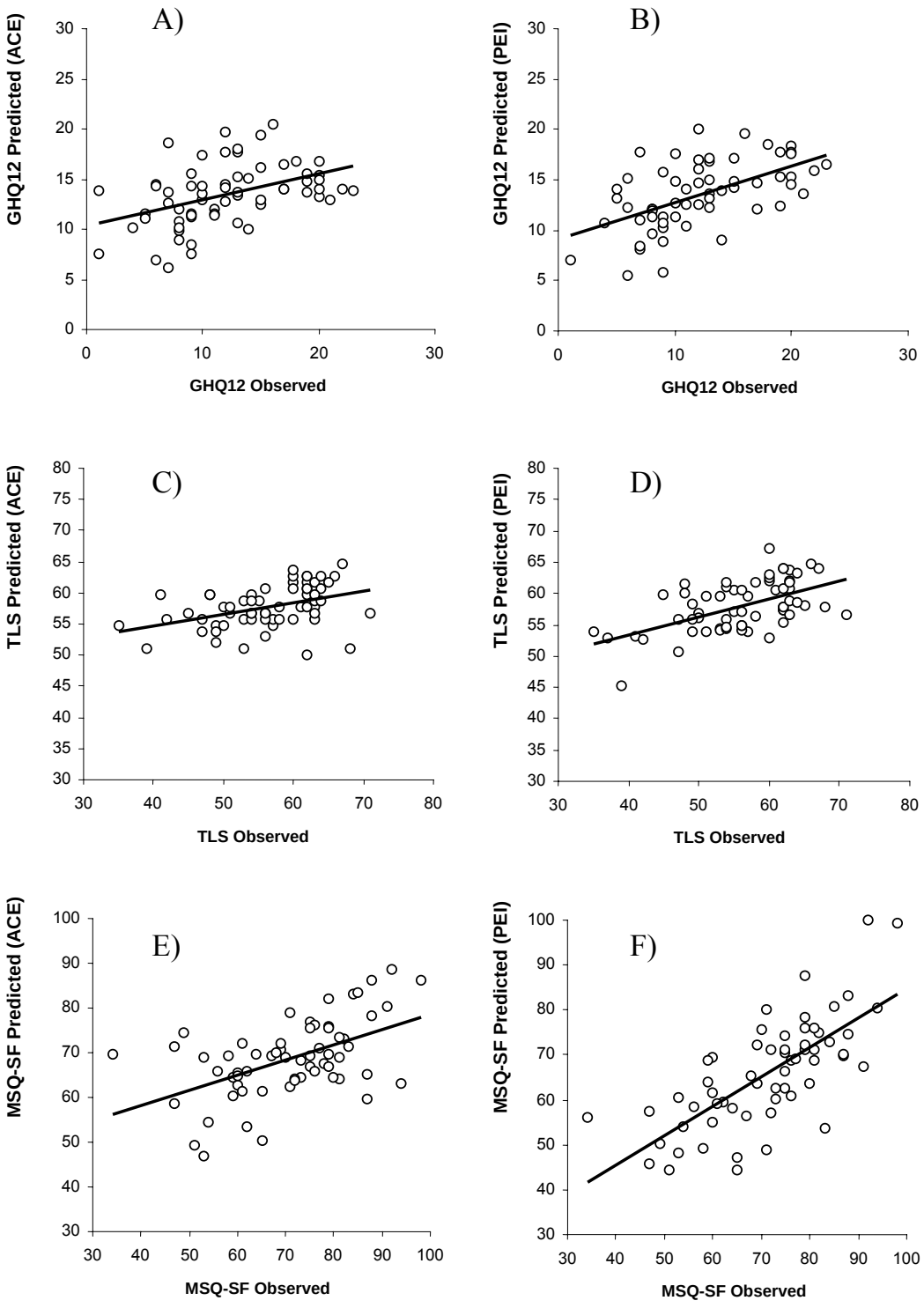


Figure 5.1: Cross-validation of the reduced model predictions of psychological wellbeing. Predicted values are those derived from sample two, observed values are those obtained from application of the reduced models in sample one. Panels on the left (A, C, & E) represent the ACE model, panels on the right (B, D, & F) represent the PEI model.

Reviewing the relative contributions of individual ACE scales to the prediction of job satisfaction, the findings consistent across both samples were that *Social Contact* provided a significant unique contributions to this prediction, and that *Social Status* was also prominent, providing a significant unique contribution in sample one and approaching significance in sample two (see Table 5.1). The prominence of *Social Contact* suggests that fewer opportunities for social contact during the day were predictive of lower reported job satisfaction, whereas the finding for *Social Status* implies that a lower perceived social standing was associated with lower reported levels of job satisfaction more strongly in sample one than sample two. *Time Structure* was not predictive of job satisfaction in either sample.

Collective Purpose provided a significant contribution to the ACE model prediction of job satisfaction in sample two, after contributing least to this prediction in sample one. The finding for *Collective Purpose* suggests that a low perception of one's involvement in a collective contribution to community was strongly related to lower reported levels of job satisfaction in sample two only. The lack of between-samples consistency for this variable suggests that little confidence may be placed in expecting the finding in sample two to occur in another similar sample.

While *Activity* also provided a significant unique contribution to the ACE model prediction of job satisfaction in sample one, it was not significantly predictive of job satisfaction in sample two. For the respondents in sample one at least, having a busy schedule of activity was associated with higher reported levels of job satisfaction. On aggregate, this finding was considered marginal, not able to be replicated in a similar sample.

Following the Backwards Deletion procedure utilised in Method III, *Collective Purpose* and *Social Contact* emerged as the best set of linear predictors within the entire

ACE model prediction of job satisfaction. This reduced ACE model accounted for a significant amount of the variance in reported levels of job satisfaction $F(2, 106) = 21.54$, $p < .001$. However, the reduced ACE model prediction of job satisfaction in sample two was substantially less than the entire ACE model prediction of job satisfaction in sample one and marginally lower than the finding for the entire ACE model in sample two (see Table 5.1). The reduced ACE model could not be considered representative of the entire ACE model prediction in both samples.

Upon cross-validation however, it was evident that the reduced ACE model prediction of job satisfaction ($R^2 = .29$) closely matched the observed values for job satisfaction in sample one ($R^2 = .28$). Panel E) in Figure 5.1 shows a thick scatter of data points indicating a positive linear trend, and the upward slope of the bold line (representing the fit between predicted and observed values) confirms this observation. Therefore, the reduced ACE model proved stable upon cross-validation to the observed values of job satisfaction in sample one.

5.3 The Principle Environmental Influence (PEI) Model Prediction of Psychological Wellbeing

5.3.1 Curvilinear Relationships with Psychological Wellbeing

Despite Warr's (1987, 1994, 1999, 2002) assertion that particular PEIs would be related to psychological wellbeing in a curvilinear fashion, no curvilinear relationships were evident upon inspection of bivariate scatter-plots between the PEI scales and each measure of psychological wellbeing, in either sample. For all PEI variables, linear models provided a superior fit to this data than quadratic or cuboid models. Therefore, the relationships between PEI and psychological wellbeing variables in both samples could be adequately treated as linear in further analyses.

5.3.2 Multivariate Data Screening

In sample one, only one multivariate outlier was found upon inspection of the associations between variables entered into the regression equations. The outlier occurred in the prediction of job satisfaction, and this case was subsequently omitted from the analysis. In sample two, one outlier was culled from the prediction of life satisfaction and two were eliminated from the prediction of job satisfaction.

While significant positive bivariate inter-correlations were found among the PEI variables in both samples, the high correlation between *Environmental Clarity* and *Valued Social Position* found in both samples suggests that regression equations containing these variables might be influenced by their multicollinearity. Although the Variable Inflation Factor (VIF) and Tolerance Estimates (TE) for these PEIs were more variable compared to the other PEIs, they were still within acceptable limits in both samples (i.e., VIF was < 5 and TE was > .2, in all regressions). However, the high association between *Environmental Clarity* and *Valued Social Position* was taken into consideration in the regression analyses, owing to the possibility that these limits may not be sensitive enough to identify the problem of multicollinearity. Consistent with the procedure of "*Model Respecification*" (Cohen et al., 2003, p. 426), both variables were initially included in each regression equation to represent the performance of the entire model, before the analyses were rerun excluding the most significant predictor of the pair, thereby determining the impact of multicollinearity upon regression output.

Despite the high inter-correlation between *Valued Social Position* and *Environmental Clarity*, other indicators suggested no violation of the assumptions underlying the regression analyses. Plots of the standardised residuals against the predicted values revealed no systematic relationship, consistent with the assumption of

linearity. Further, the normal probability plots of the standardised residuals indicated a normal distribution.

5.3.3 The PEI Model Prediction of Psychological Distress

The inclusion of age, gender and tenure in the regression equation for Method I resulted in these demographic variables contributing 2.6% (sample one) and 1.4% (sample two) to the explanation of variance in psychological distress. This contribution was not statistically significant in either sample one $F(3, 50) < 1$, or sample two $F(3, 96) < 1$. As Table 5.2 shows, no meaningful between-samples difference was found upon comparison of the difference in *Adjusted* R^2 values from Method I to Method II.

Excluding the influence of the demographic variables at Method II, the PEI model was found to explain 39.6% of the variance in reported levels of psychological distress in sample one $F(9, 47) = 3.43$, $p = .003$, and 32.6% of the variance in reported levels of psychological distress in sample two $F(9, 93) = 5.00$, $p < .001$. The between-samples difference in strength of prediction of psychological distress was not significant ($CI_{95\%}$ = +0.28 to -0.14).

None of the individual PEI variables provided significant independent contributions to the PEI model prediction of psychological distress in sample one (see Table 5.2). Having said that, *Environmental Clarity* approached significance in sample one, and provided the only significant unique contribution to the prediction of psychological distress in sample two. Owing to the prominence of *Environmental Clarity* in sample one, and the significance of the finding in sample two, a consistent prediction was interpreted. Lower clarity for knowing how to meet the expectations of the work environment was predictive of higher levels of psychological distress.

Valued Social Position contributed least to the PEI model prediction of psychological distress in sample one, despite its moderate bivariate relationship with psychological distress reported in Chapter Four (see Table 4.2). Given the plausibility that *Valued Social Position* and *Environmental Clarity* represent a similar portion of variance within the PEI model prediction of psychological distress, Methods I and II were repeated without *Environmental Clarity*. Subsequently, *Valued Social Position* made a significant contribution to the PEI model prediction of psychological distress in sample one ($\beta = -.37$; $t = -2.91$, $p = .005$) and sample two ($\beta = -.41$; $t = -4.31$, $p < .001$), thereby confirming an overlap in the association between these two variables and psychological distress. Lower perceived social standing and lower perceived involvement in a collective contribution to community was strongly associated with higher reported levels of psychological distress. However, the marginal reduction in the proportion of variance explained by the PEI model without *Environmental Clarity* in sample one (reduction in *Adjusted* $R^2 = .04$) and sample two (reduction in *Adjusted* $R^2 = .03$) suggests that *Environmental Clarity* made a modest unique contribution to the explanation of variance in psychological distress in both samples. Therefore, these PEI variables were not considered wholly interchangeable in respect of their association with psychological distress.

Supporting this interpretation, the Backwards Deletion procedure in Method III found that *Environmental Clarity*, *Valued Social Position* and *Opportunities for Control* provided the best set of linear predictors in the PEI model prediction of psychological distress (see Table 5.2). While *Environmental Clarity* made the only significant independent contribution to this prediction, the findings for *Valued Social Position* and *Opportunities for Control* also approached significance. Less clarity for work

Table 5.2: Sequential, Simultaneous and Statistical Regression Analyses for the PEI model Prediction of Psychological wellbeing

	Sample One ($N = 66$) Psychological Wellbeing									Sample Two ($N = 111$) Psychological Wellbeing								
	Psychological Distress (GHQ12)			Life Satisfaction (TLS)			Job Satisfaction (MSQ-SF)			Psychological Distress (GHQ12)			Life Satisfaction (TLS)			Job Satisfaction (MSQ-SF)		
Predictor	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*	β	*t*	*p*
Method I:																		
AGE	-.11	-.87	.39	-.25	-2.05	.05	-.12	-1.10	.28	.10	1.05	.30	-.15	-1.52	.13	-.04	-.56	.58
Gender	-.06	-.48	.63	-.14	-1.12	.27	.11	.98	.34	.07	.73	.47	-.10	-1.14	.26	-.02	-.24	.81
Tenure	-.11	-.84	.41	.13	1.09	.28	.02	.20	.84	.06	.59	.56	-.02	-.23	.82	.01	.05	.96
Adj. R^2			*.27*			*.33*			*.47*			*.25*			*.25*			*.53*
Method II:																		
Money	.12	.99	.33	.22	1.79	.08	-.03	-.29	.77	-.03	-.32	.75	.19	2.04	.04	-.17	-2.40	.02
Phys. Sec.	-.20	-1.42	.16	.10	.67	.50	.05	.40	.69	-.06	-.62	.54	.16	1.66	.10	.19	2.45	.02
VSP	.01	.05	.96	.02	.12	.91	.17	.97	.34	-.18	-1.28	.20	-.03	-.21	.83	.27	2.47	.02
Goals	-.14	-1.05	.30	.16	1.25	.22	.04	.34	.73	.10	1.11	.27	-.02	-.23	.82	.03	.34	.74
Clarity	-.34	-1.83	.07	.24	1.29	.20	.21	1.31	.20	-.29	-2.19	.03	.29	2.19	.03	.01	.11	.92
Control	-.09	-.64	.52	.04	.33	.74	.04	.34	.74	-.09	-.79	.43	.05	.49	.62	.13	1.50	.14
Skill Use	.08	.54	.59	-.14	-.94	.35	.21	1.65	.11	-.01	-.09	.93	.14	1.29	.20	.18	2.14	.04
Variety	-.09	-.60	.55	.05	.37	.72	.31	2.49	.02	-.07	-.61	.54	-.19	-1.67	.10	.29	3.21	.002
Int. Contact	-.14	-.91	.37	.25	1.66	.10	.02	.16	.87	-.08	-.74	.46	.16	1.49	.14	.07	.85	.40
Adj. R^2			*.28*			*.30*			*.48*			*.26*			*.24*			*.54*
Method III:																		
Money	-	-	-	-	-	-	-	-	-	-	-	-	.20	2.28	.03	-.16	-2.30	.02
Phys. Sec.	-	-	-	-	-	-	-	-	-	-	-	-	.20	2.17	.03	.20	2.80	.01
VSP	-	-	-	-	-	-	-	-	-	-.22	-1.81	.07	-	-	-	.32	4.18	<.001
Goals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarity	-	-	-	-	-	-	-	-	-	-.28	-2.22	.03	.35	3.81	<.001	-	-	-
Control	-	-	-	-	-	-	-	-	-	-.16	-1.77	.08	-	-	-	-	-	-
Skill Use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.21	2.59	.01
Variety	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.35	4.42	<.001
Int. Contact	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adj. R^2												*.28*			*.25*			*.55*

Note. Method I included demographic and PEI variables, Method II included PEI variables only, Method III is the reduced PEI model derived from the backwards deletion procedure.

expectations, lower perceived control over the work routine, and lower perceived social standing and involvement in a collective contribution to community were predictive of higher reported levels of psychological distress.

Upon comparison of *Adjusted* R^2 values, the reduced PEI model prediction of psychological distress in sample two was equal to the finding for the entire model in sample one, yet marginally higher than the finding for the entire model in sample two (see Table 5.2). Therefore, in both samples, the reduced PEI model was at least equivalent to the entire PEI model in extent of prediction of psychological distress. The reduced PEI model may therefore be considered a more parsimonious representation of the entire PEI model in association with psychological distress in both samples.

Upon cross-validation, it was evident that the reduced PEI model prediction of psychological distress derived from sample two ($R^2 = .30$), provided a close fit to the observed levels of psychological distress in sample one ($R^2 = .32$). A positive linear trend is evident from a review of panel B) in Figure 5.1 where a normal scatter of data points presents an elongated pattern about the bold line of fit. A more parsimonious representation of the entire model, the reduced PEI model proved stable upon cross-validation to the observed values of psychological distress in sample one.

5.3.4 The PEI Model Prediction of Life Satisfaction

The inclusion of age, gender and tenure in Method I resulted in these demographic variables contributing 6.7% (sample one) and 2.5% (sample two) to the explanation of variance in life satisfaction. This contribution was not statistically significant in either sample one $F(3, 50) = 1.88$, $p = .15$, or sample two $F(3, 95) = 1.12$, $p = .35$. No meaningful difference was found upon comparison of the difference in *Adjusted* R^2 values from Method I to Method II in either sample. Notably however, the finding for age ($\beta = -.25$)

was significant in sample one (t = -2.05, p < .05), suggesting that compared to their younger counterparts, older respondents in sample one were less satisfied with their lives.

Excluding the influence of the demographic variables at Method II, the PEI model was found to explain 41.0% of the variance in reported levels of life satisfaction in sample one $F(9, 47) = 3.62$, $p = .002$, and 31.0% of the variance in reported levels of life satisfaction in sample two $F(9, 92) = 4.60$, $p < .001$. The between-samples difference in strength of prediction was not significant ($CI_{95\%}$ = +0.31 to -0.11).

Upon review of the relative contributions from within the PEI model, it is evident that none of the individual PEI variables provided significant independent contributions to the prediction of life satisfaction in sample one (see Table 5.2). While *Money* approached significance within the PEI model prediction of life satisfaction in sample one, *Environmental Clarity* and *Money* provided significant independent contributions to the prediction of life satisfaction in sample two. The prominence of *Money* in both samples suggests that the availability of money was related to life satisfaction, congruent with the consistent bivariate relationship between these variables detected in Chapter Four. In sample two, clarity for how to meet expectations within the work environment was also strongly associated with life satisfaction.

Valued Social Position contributed least to the PEI model prediction of life satisfaction in both samples (see Table 5.2). This finding is interesting because the ACE model variable *Social Status* was most prominent in the ACE model prediction of life satisfaction in both samples and provided half of the items in *Valued Social Position*. Further, a consistent low-to-moderate bivariate relationship was detected between these variables in Chapter Four. Given the plausibility that *Valued Social Position* and *Environmental Clarity* explain a similar portion of variance in the PEI model prediction of life satisfaction, the regression procedures were repeated without *Environmental Clarity*. In

addition to a significant result for *Money* (β = .24, *t* = 2.10, *p* = .04), *Valued Social Position* also became significant in sample one (β = .26, *t* = 2.18, *p* = .03), as did *Opportunities for Interpersonal Contact* (β = .32, *t* = 2.57, *p* = .01). Further, compared to the entire PEI model, the PEI model excluding *Environmental Clarity* explained a similar proportion of variance in reported levels of life satisfaction in sample one (increase in *Adjusted* R^2 = .01). In the absence of *Environmental Clarity*, the PEI variables most closely related to a theme of social reference made an equivalent contribution to *Money* in the PEI model prediction of life satisfaction in sample one.

Interestingly, while the contribution made by *Valued Social Position* became significant upon the exclusion of *Environmental Clarity* in sample one, the same did not occur in sample two. Upon exclusion of *Environmental Clarity* in sample two, *Money* (β = .21, *t* = 2.34, *p* = .02) and *Opportunities for Interpersonal Contact* (β = .26, *t* = 2.49, *p* = .02) again made a significant independent contribution. The consistent low-to-moderate bivariate relationships between *Opportunities for Interpersonal Contact* and both *Valued Social Position* and *Environmental Clarity* (see Chapter Four), together with the consistent finding here suggests that greater opportunity for social contact may help to provide increased clarity for meeting the expectations of the work role, therefore contributing to higher levels of life satisfaction. In addition, the PEI model excluding *Environmental Clarity* explained marginally less variance in reported levels of life satisfaction (reduction in *Adjusted* R^2 = .03). This finding suggests a complex interplay between *Valued Social Position* and *Environmental Clarity*, with the extent to which these variables overlap in their multivariate association with psychological wellbeing varying per sample and per measure of psychological wellbeing.

Following implementation of the Backwards Deletion procedure in Method III, *Environmental Clarity*, *Money* and *Physical Security* were found to provide the best set of

linear predictors in the PEI model prediction of life satisfaction (see Table 5.2). Less clarity for work expectations was strongly associated with lower reported levels of life satisfaction. While the magnitudes of association were less strong, greater perceived availability of money and higher perceived safety and security were also predictive of higher levels of life satisfaction. Compared to the entire PEI model, the reduced PEI model provided an equivalent extent of prediction in sample two but a marginally lower extent of prediction in sample one (see Table 5.2). Therefore, the reduced PEI model prediction of life satisfaction was not considered representative of the entire model in both samples.

Upon cross-validation however, the reduced PEI model prediction ($R^2 = .27$) provided a similar fit to the observed levels of life satisfaction in sample one ($R^2 = .31$). In panel D) of Figure 5.1, a positive linear scatter is evident, with the even cluster about the bold line of fit suggesting a close match between predicted and observed values. Therefore, the reduced PEI model prediction of life satisfaction proved stable upon cross-validation to sample one.

5.3.5 The PEI Model Prediction of Job Satisfaction

The inclusion of age, gender and tenure at Method I resulted in these demographic variables contributing 2.1% (sample one) and 0.2% (sample two) to the explanation of variance in job satisfaction. This contribution was not statistically significant in either sample one $F(3, 49) < 1$, or sample two $F(3, 96) < 1$. Upon perusal of Table 5.2, no substantial difference in *Adjusted* R^2 values from Method I to Method II is evident for either sample.

Excluding the influence of demographic variables in Method II, the PEI model was found to explain 56.4% of the variance in reported levels of job satisfaction in sample one $F(9, 46) = 6.61$, $p < .001$, and 58.3% of the variance in reported levels of job satisfaction in sample two $F(9, 93) = 14.45$, $p < .001$. These were the strongest predictions made of either

model with any of the measures of psychological wellbeing, in either sample. The between-samples difference in the strength of prediction of job satisfaction was not significant ($CI_{95\%}$ = +0.16 to -0.20).

Variety provided the largest significant contribution to the PEI model prediction of job satisfaction in both samples (see Table 5.2). A consistent association, this finding strongly suggests that where the work routine restricted the experience of novel tasks, task diversity and range of activities, respondents reported lower job satisfaction. None of the other PEIs provided significant contributions to the PEI model prediction of job satisfaction in sample one.

Opportunities for Skill Use was also important to the PEI model prediction of job satisfaction in both samples. While this variable made a modest, non-significant contribution to the PEI model prediction of job satisfaction in sample one, it made the next largest contribution to the PEI model prediction following *Variety* in sample two. In fact, *Opportunities for Skill Use* provided a statistically significant contribution to PEI model prediction of job satisfaction in sample two. That the magnitude of the regression coefficient (β) was marginally higher in sample one than sample two (see Table 5.2) suggests that the smaller size of sample may have prevented the sample one finding from reaching statistical significance in sample one. In the shadow of the low internal consistency of this scale reported earlier (Chapter Four), this inference and the data in Table 5.2 suggest a low yet consistent contribution to the PEI model prediction of job satisfaction. Therefore, a work task routine lacking in challenge with respect to the use and extension of existing skills was also predictive of lower job satisfaction, albeit to a modest extent.

Although *Valued Social Position* and *Environmental Clarity* held moderate bivariate relationships with job satisfaction in sample one, neither variable provided a

significant contribution to the PEI model prediction of job satisfaction. Given the possibility of a multicollinearity effect, the stronger bivariate associate of job satisfaction (*Environmental Clarity*) was excluded from the PEI model, and the regressions were rerun. Confirming the multicollinearity effect, *Valued Social Position* became strongly significant ($\beta = .36$, $t = 3.57$, $p = .001$), in addition to *Variety* ($\beta = .36$, $t = 3.30$, $p = .002$) and *Opportunities for Skill Use* ($\beta = .23$, $t = 2.06$, $p < .05$).

In addition to the above findings, Table 5.2 also shows that *Money*, *Physical Security* and *Valued Social Position* made significant independent contributions to the PEI model prediction of job satisfaction in sample two. Where respondents in sample two perceived greater comfort, safety and security within their environment, they also reported higher levels of job satisfaction. In addition, a lower perceived social standing and lower perceived involvement in a collective contribution to community was associated with lower job satisfaction. Unexpectedly, the finding for *Money* was in the negative direction, suggesting that greater availability of money was associated with lower job satisfaction. These findings were not consistent in both samples.

Environmental Clarity contributed least to the PEI model prediction of job satisfaction in sample two. This result was not expected because a consistent moderate bivariate relationship with job satisfaction was detected between these variables in Chapter Four. However, it is noteworthy that the bivariate relationship was lower than that found for *Valued Social Position*. Reflecting upon the previous findings, it was evident that where the magnitude of the bivariate association with the dependent variable was greater for *Environmental Clarity* than *Valued Social Position*, *Valued Social Position* had been 'masked' by *Environmental Clarity* in the subsequent regression output. Evidently, the reverse was true in respect of the PEI model prediction of job satisfaction in sample two. Given the interplay between these variables in sample one, Methods I and II were repeated

excluding *Valued Social Position*. In addition to the four PEI variables originally found to significantly contribute to the entire PEI model prediction, *Environmental Clarity* also made a statistically significant contribution to the PEI model prediction of job satisfaction in sample two ($\beta = .24$, $t = 3.10$, $p = .003$), following exclusion of *Valued Social Position*. Furthermore, the exclusion of *Valued Social Position* from the PEI prediction of job satisfaction only marginally detracted from the overall strength of the prediction (reduction in *Adjusted* $R^2 = .02$). Therefore, *Valued Social Position* and *Environmental Clarity* appear to share a substantial portion of variance in their multivariate association with job satisfaction in both samples. Clarity for how to meet expectations of social value and work performance was important to job satisfaction in both samples.

Following the Backwards Deletion procedure in Method III, the best set of linear predictors from the PEI model prediction of job satisfaction were *Money*, *Physical Security*, *Valued Social Position*/*Environmental Clarity*, *Opportunities for Skill Use* and *Variety*. Compared to the entire PEI model predictions of job satisfaction, this reduced PEI model explained a marginally higher proportion of variance in reported levels of job satisfaction, in both samples (see Table 5.2). Therefore, the reduced PEI model provided a more parsimonious representation of the entire PEI model prediction of job satisfaction in both samples.

Upon cross-validation, the predicted values derived from the reduced PEI model ($R^2 = .57$) were similar to the observed values of job satisfaction in sample one ($R^2 = .51$). Panel F) in Figure 5.1 shows a thick scatter of data points either side of the bold line of fit, suggesting a positive linear association between the predicted and observed values. The larger angle of elevation (from left to right) of the bold line of fit compared to the other panels in Figure 5.1 reflects the greater proportion of variance in reported levels of job satisfaction explained by the reduced PEI model. Therefore, the reduced PEI model

provided a prediction of job satisfaction that proved stable upon cross-validation to the observed values of job satisfaction in sample one.

5.3.6 Path Analyses Investigating the PEI Model

In the regression analyses presented earlier, *Opportunities for Control* failed to provide a significant unique contribution to the entire PEI model predictions of psychological distress, life or job satisfaction a finding that challenges Warr's (1987) assertion that the perception of control was the"…foundation of mental health…" (p. 4). In anticipation of such findings however, Warr (1987) postulated that the relationship between *Opportunities for Control* and psychological wellbeing might be mediated by the presence of other PEI variables dependent upon the extent of control within the work environment.

In the context of the multiple regression findings for the PEI model, the control-dependent PEIs might have shared the portion of variance in reported levels of psychological wellbeing explained by *Opportunities for Control*. Consequently, the unique contribution made by *Opportunities for Control* to the PEI model prediction of psychological wellbeing may have been minimised by the presence of control-dependent PEIs in the regression analyses.

An alternative description for this scenario is that the direct path of association (hereafter the direct effect) from *Opportunities for Control* to psychological wellbeing may have been smaller than the indirect effect (the sum total of the indirect paths of association, through the control-dependent PEIs). Indeed, previous research has reported larger indirect effects than direct effects in the relationships between *Opportunities for Control* and both negative affect (Bryce & Haworth, 2003) and life satisfaction (Haworth et al., 1997). The discrepancy between direct and indirect effects found in previous PEI studies may also be found in the present study.

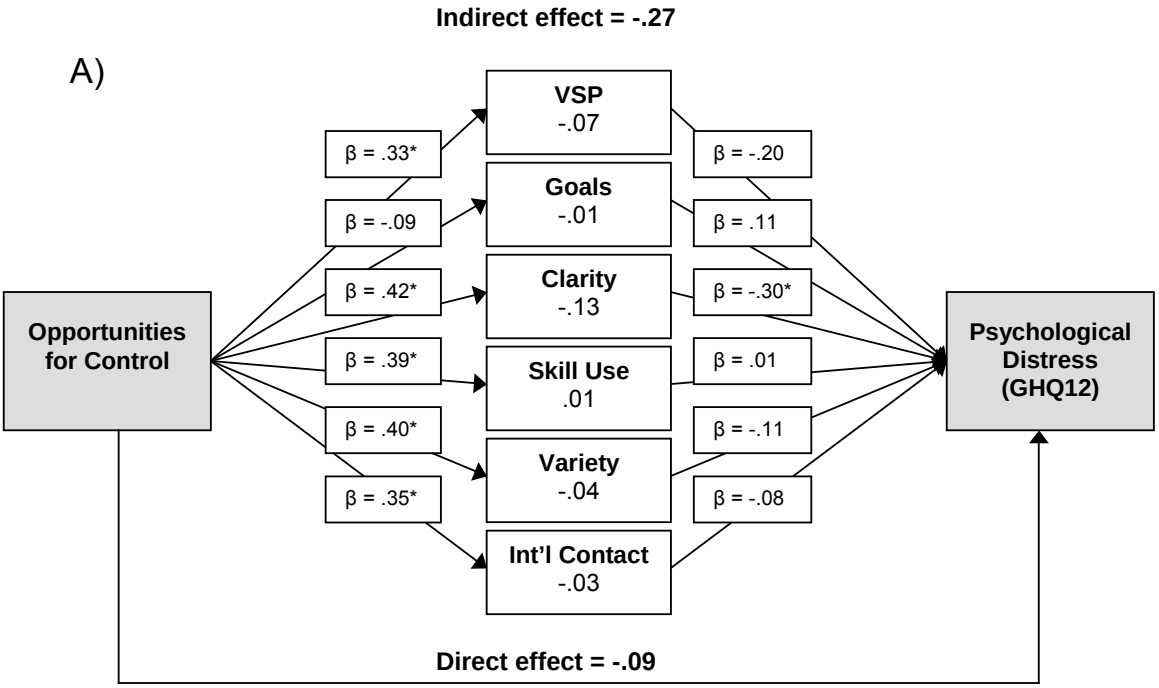
Investigating this possibility, path analyses were calculated for the larger sample two. Assuming a recursive, unidirectional path analysis model, the association between *Opportunities for Control* and psychological wellbeing was decomposed to enable a comparison of the direct path of association, and several indirect paths of association, through the control-dependent PEIs (for a review of this procedure see Pedhazur, 1982; Pedhazur & Schmelkin, 1991). In this model, *Opportunities for Control* is considered as an exogenous variable and the control-dependent PEIs and each measure of psychological wellbeing are endogenous variables. To calculate the first part of each indirect path, bivariate linear regression analyses were used to determine the extent of association (represented by the standardised regression coefficient, β) between *Opportunities for Control* and a control-dependent PEI (all other PEIs excluding *Money* and *Physical Security* – following Bryce & Haworth, 2003). The second part of each indirect path was calculated using a simultaneous multiple regression analysis, finding the extent of association (β) between each control-dependent PEI and a given measure of psychological wellbeing. The product of the first and second parts of each indirect path resulted in a coefficient representing the indirect path of association (Bryman & Cramer, 1990; Garson, 2005). Where the coefficient representing the indirect path was greater than or equal to .06, it was considered uniquely interpretable, after Land (1969: cited in Kerlinger & Pedhazur, 1973). Regardless of whether or not an indirect path was uniquely interpretable, all indirect path coefficients were summed together to determine the indirect effect (e.g., Bryce & Haworth, 2003). The indirect effect was then compared to the direct effect, which is the extent of association (β) between *Opportunities for Control* and psychological wellbeing (also determined in the simultaneous multiple regression for the second part of the indirect path). Upon interpretation, both effects may be considered for their proportionate contribution to the 'Total Effect', which is the sum of the direct and indirect effects

(Bryman & Cramer, 1990). It is also noteworthy, that the Total Effect (aside from minor error variance and rounding procedures) is approximately equivalent to a Pearson bivariate correlation coefficient, in this case between *Opportunities for Control* and a given measure of psychological wellbeing.

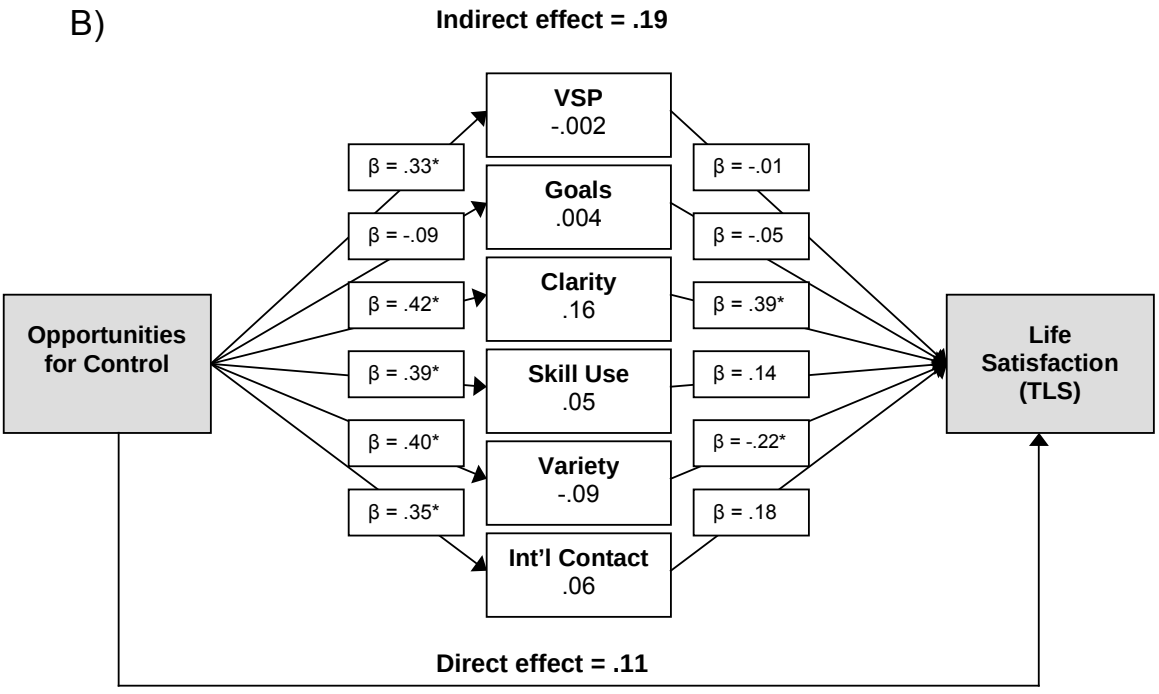
5.3.6.1 Path analysis of the relationship between Opportunities for Control and psychological distress in sample two

Although a significant bivariate relationship was found between *Opportunities for Control* and psychological distress (r = -.33; see Table 4.2), panel A) of Figure 5.2 shows that the indirect effect was approximately three times the size of the direct effect. Therefore, a larger proportion of the Total Effect representing the relationship between *Opportunities for Control* and psychological distress was explained through the indirect paths of association. The indirect paths through *Environmental Clarity* and *Valued Social Position* made substantial, uniquely interpretable contributions to the overall indirect effect, suggesting that the relationship between perceived control over the work routine

A)


Indirect effect = -.27
VSP
-.07
Goals
-.01
Clarity
-.13
Skill Use
.01
Variety
-.04
Int'l Contact
-.03
β = .33*
β = -.09
β = .42*
β = .39*
β = .40*
β = .35*
β = -.20
β = .11
β = -.30*
β = .01
β = -.11
β = -.08
Opportunities for Control
Psychological Distress (GHQ12)
Direct effect = -.09

B)


Indirect effect = .19
VSP
-.002
Goals
.004
Clarity
.16
Skill Use
.05
Variety
-.09
Int'l Contact
.06
β = .33*
β = -.09
β = .42*
β = .39*
β = .40*
β = .35*
β = -.01
β = -.05
β = .39*
β = .14
β = -.22*
β = .18
Opportunities for Control
Life Satisfaction (TLS)
Direct effect = .11

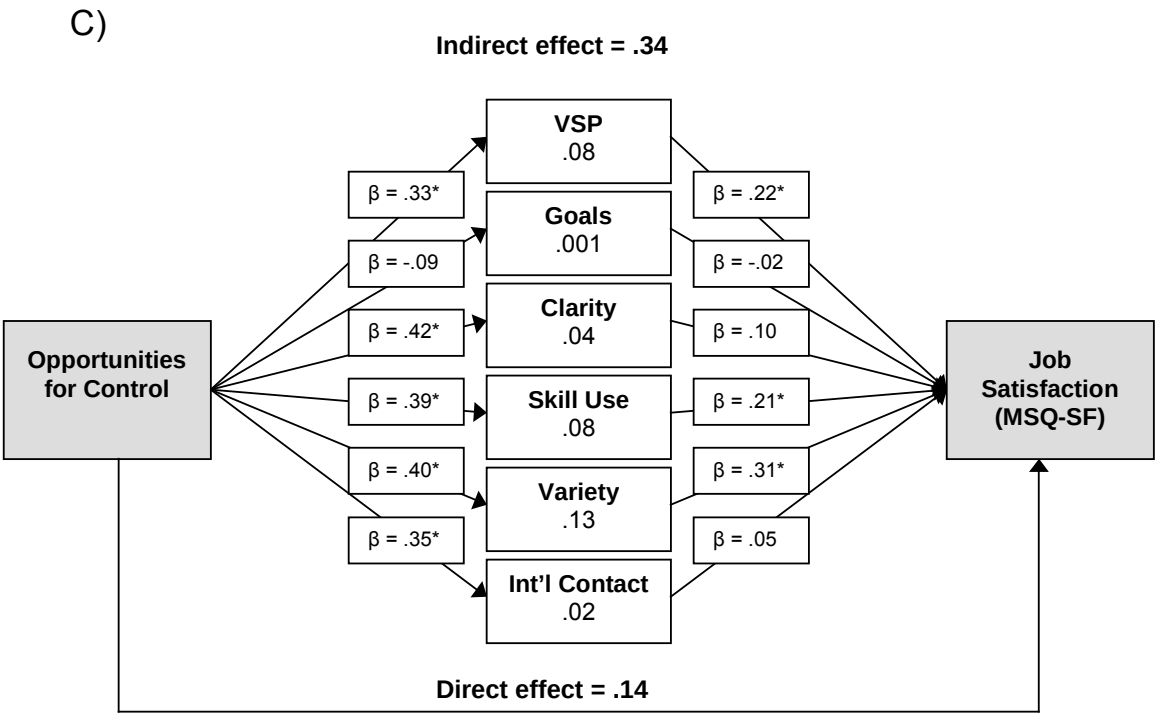


Figure 5.2: Path analyses of the relationship between *Opportunities for Control* and psychological wellbeing in sample two. Panel A) represents the path analysis for Psychological Distress, B) Life Satisfaction, and C) Job Satisfaction. Values to the left and right of the middle boxes represent the first and second parts (respectively) of the indirect paths. Values in the middle boxes represent the indirect path coefficients. Values are beta weights significant at $*p < .05$. Path diagrams adapted from Bryce & Haworth (2003, p.579).

and psychological distress was mediated through clarity of work expectations, and perceived social standing and contribution to community.

5.3.6.2 Path analysis of the relationship between Opportunities for Control and life satisfaction in sample two

Although a significant bivariate relationship was found between *Opportunities for Control* and life satisfaction ($r = .30$; see Table 4.2), panel B) of Figure 5.2 shows that the indirect effect was larger than the direct effect, albeit to a lesser extent (relative to the finding for the other measures of psychological wellbeing). Therefore, a larger proportion of the Total Effect representing the relationship between *Opportunities for Control* and life satisfaction was explained through the indirect paths of association. While the path through *Environmental Clarity* provided a large uniquely interpretable indirect path of association

(a finding consistent with Haworth et al., 1997), a small but uniquely interpretable indirect path was also found through *Opportunities for Interpersonal Contact*. These findings suggest that the relationship between perceived control over the work routine and life satisfaction was mediated by the degree of clarity for how to meet work expectations and the extent of social contact during the day. It is also evident that the substantial negative coefficient for the indirect path through Variety detracted from the overall indirect effect found for the relationship between perceived control at work and life satisfaction.

5.3.6.3 Path analysis of the relationship between Opportunities for Control and job satisfaction in sample two

Although a significant bivariate relationship was found between *Opportunities for Control* and job satisfaction (r = .46; see Table 4.2), panel C) of Figure 5.2 shows that the indirect effect was more than twice the size of the direct effect. Therefore, a larger proportion of the Total Effect representing the relationship between *Opportunities for Control* and job satisfaction was explained through the indirect paths of association. While the path through *Variety* provided the largest uniquely interpretable contribution to the indirect effect, uniquely interpretable indirect paths were also found through *Valued Social Position* and *Opportunities for Skill Use*. The relationship between perceived control over the work routine and job satisfaction was mediated by the breadth and diversity of work tasks, perceived social standing and community engagement, and opportunities for the use and extension of existing skills.

5.4 Model Comparisons in the Prediction of Psychological Wellbeing

In this section, comparisons between the ACE and PEI models are made to determine whether or not the PEI model was a better predictor of psychological wellbeing, thereby specifically addressing hypothesis four. The ACE and PEI model (hereafter, formulations) predictions of psychological wellbeing are compared on grounds of strength

and stability. The evidence from the reduced models of both formulations is also compared in respect of their representativeness of their respective entire model predictions from both samples, and the stability of their respective predictions between-samples. To avoid confusing the terms of reference, the term ‘formulation’ is used in place of ‘model’ to refer to both the ACE and PEI model, and the term ‘model’ is used to refer to the ‘entire model’ unless preceded by the specifier ‘reduced’.

5.4.1 Consistency of Prediction: Between Samples, Between Models

The ACE model prediction of psychological distress was highly consistent between samples, a difference in R^2 of only 2.6%. By contrast, the between-samples difference in the PEI model prediction of psychological distress was 7.0%. The ACE model was a marginally more consistent predictor of psychological distress than the PEI model. That said, no statistically significant between-samples differences in extent of prediction of psychological distress were found within either formulation.

Conversely, the ACE model prediction of life satisfaction was significantly different between samples, suggesting a lack of consistency of model performance. By contrast, the PEI model was a more consistent predictor, providing explanations of variance in life satisfaction that were not significantly different between samples. It is notable however, that the prediction of life satisfaction was the least consistent for both models, relative to their predictions of other measures of psychological wellbeing.

Compared to the PEI model, the ACE model was also less consistent in the prediction of job satisfaction between samples. For the ACE model, the between-samples difference in proportion of variance explained in job satisfaction (derived from Method II) was 11.5%. By contrast, the PEI model prediction of job satisfaction was highly consistent between samples, a difference in R^2 of only 1.9%. Overall, the PEI model was a more

consistent predictor of life and job satisfaction but not psychological distress, compared to the ACE model.

5.4.2 Strength of Prediction: Between Samples, Between Models

To compare the strengths of prediction found for each model *Adjusted* R^2 values were used to minimise the differences that may be attributable to the greater number of predictor variables in the PEI model. After Method II, the *Adjusted* R^2 values in Tables 5.1 (ACE model) and 5.2 (PEI model) were directly compared for each sample. Comparing the performance of both models, the PEI model appeared to make stronger predictions of psychological distress in sample one (difference in *Adjusted* R^2 = .12) and sample two (difference *Adjusted* R^2 = .04). However, these between-models differences were not statistically significant in either sample one ($CI_{95\%}$ = +0.071 to -0.395) or sample two ($CI_{95\%}$ = +0.131 to -0.262). Therefore, both models were statistically equivalent in extent prediction of psychological distress, in both samples.

In respect of life satisfaction, between samples differences emerged upon comparisons between both formulations. In sample one, the ACE model appeared to be a stronger predictor of life satisfaction than the PEI model (difference in *Adjusted* R^2 = .08). In sample two however, the PEI model appeared to make a stronger prediction of life satisfaction than the ACE model (difference in *Adjusted* R^2 = .07), despite a 6% reduction in the proportion of variance explained by the PEI model in sample two. Despite this variability in prediction of life satisfaction, the between-model differences in extent of prediction were not statistically significant in either sample one ($CI_{95\%}$ = +0.161 to -0.199), or sample two ($CI_{95\%}$ = +0.161 to -0.199). In each sample, both models were statistically equivalent in extent of prediction of life satisfaction.

In respect of job-related psychological wellbeing, the PEI model appeared to be stronger than the ACE model in the extent of prediction of job satisfaction in sample one

(difference in *Adjusted* R^2 = .09) and sample two (difference in *Adjusted* R^2 = .24). While the between-models difference in strength of prediction was statistically significant in sample two ($CI_{95\%}$ = -0.072 to -0.426), it was not significant in sample one ($CI_{95\%}$ = +0.105 to -0.335). That said, the PEI model differs from the ACE model by the inclusion of job characteristics in the analysis. It is notable that *Variety* and *Opportunities for Skill Use* were the most consistent predictors of job satisfaction in both samples. The stronger prediction of job satisfaction made by the PEI model (relative to the ACE model) was attributed to the extension of the analysis (beyond social reference) to include these indicators of job scope.

5.4.3 Stability within Reduced Model Predictions: Cross-Validation

Compared to their respective entire model predictions, the reduced model predictions from both formulations were found to explain an equivalent amount of the variance in reported levels of psychological distress in both samples. Compared to the reduced ACE model, the reduced PEI model explained 4% more of the variance in reported levels of psychological distress (see Tables 5.1 and 5.2 for *Adjusted* R^2 values).

In respect of life satisfaction, the reduced models of both formulations were not adequately representative of their respective entire model predictions of life satisfaction in both samples. While the reduced models from both formulations (derived from sample two) were at least equivalent to their respective entire model predictions in sample two, the reduced models of both formulations explained less of the variance in reported levels of life satisfaction in sample one. However, while no statistically significant difference in strength of prediction was found between the reduced PEI model and the entire PEI model in sample one, a statistically significant difference was found between the reduced ACE model and the entire ACE model of sample one. In addition, the reduced PEI model

explained 7% more of the variance in life satisfaction than the reduced ACE model (see Tables 5.1 and 5.2 for *Adjusted* R^2 values) in sample two.

In respect of job satisfaction, the reduced ACE model prediction of job satisfaction was found to be representative of the entire ACE model in sample two only. Therefore, it was not considered to provide adequate representation of the entire ACE model in both samples – different ACE categories were important to the prediction of job satisfaction in each sample. By contrast, the reduced PEI model prediction of job satisfaction was equivalent to the findings for the entire PEI model in both samples. Accordingly, it was considered a more parsimonious representation of the entire PEI model. In addition, the reduced PEI model explained 27% more of the variance in reported levels of job satisfaction compared to the reduced ACE model (see Tables 5.1 and 5.2 for *Adjusted* R^2 values). This finding is likely to be due to the increased scope of the reduced PEI model, including seemingly important job characteristics such as work task diversity and opportunities for the use and extension of existing skills.

5.4.4 Summary of Between-Models Comparison

Although the PEI model appeared to make stronger predictions of psychological distress than the ACE model in both samples, this between-model difference was not statistically significant. While the reduced models of both formulations were found to be stable, more parsimonious representations of their respective entire models, the reduced PEI model appeared to be a marginally stronger predictor in both samples.

In respect of life satisfaction, while both models were variable in their extent of prediction between samples, no statistically significant between-model differences were found in either sample. Investigating between sample variability more closely, a statistically significant between-samples difference in extent of prediction of life satisfaction was found within the ACE model. Given that the same was not true for the PEI

model, the PEI model was considered a more consistent predictor of life satisfaction. Further support for this conclusion was evident in the finding that different predictors within the ACE model contributed to each prediction between samples. The same was not found for the PEI model prediction of life satisfaction. A similarity between the models was evident in the finding that the reduced models of both formulations were not adequately representative of their respective entire model predictions of life satisfaction.

Compared to ACE, the PEI model appeared to be a stronger predictor of job satisfaction, although the between-models difference was statistically significant in sample two only. Compared to the reduced ACE model, only the reduced PEI model was considered a stable and more parsimonious representation of the entire model. In addition, the reduced PEI model was a stronger predictor of job satisfaction than the reduced ACE model, a finding attributable to the addition of job scope variables, extending the analysis beyond social reference.

On the whole, the PEI model was a consistently stronger predictor of job satisfaction, and a more consistent predictor of life satisfaction than the ACE model. No significant between-model differences were evident upon comparison of their relative strength and consistency in predicting psychological distress. Therefore, compared to ACE, the PEI model was a better predictor of life and job satisfaction but not psychological distress, a finding that partially supported hypothesis four.

5.5 Chapter Five Summary

Both the ACE and PEI models were significantly predictive of psychological distress, life and job satisfaction, confirming hypotheses two and three. However, the PEIs *Valued Social Position* and *Environmental Clarity* shared a substantial portion of their multivariate association with psychological distress, life and job satisfaction, with the extent of this overlap occasionally varying between samples and between measures of psychological wellbeing. This overlap suggests that both variables relate to a similar construct, considered as clarity in respect of how to derive social value and meet performance expectations of the work environment.

Both the ACE and PEI models were statistically equivalent in the extent of their predictions of psychological distress and life satisfaction, a finding that was largely attributable to the commonality between the models in respect of the prominence of Social Reference. Compared to ACE, the PEI model was more consistent in the prediction of life satisfaction. The PEI model also made a stronger prediction of job satisfaction than the ACE model in both samples, a finding that was statistically significant in the larger sample two. While Social Reference was again prominent, the Job Scope variables also consistently provided significant contributions to the PEI model prediction of job satisfaction. Overall, the PEI model was considered a better predictor of life and job satisfaction, but not psychological distress, thereby partially confirming hypothesis four.

Finally, the absence of unique contributions for *Opportunities for Control* to the regression analyses was further investigated. Path analyses revealed that the relationship between *Opportunities for Control* and all three measures of psychological wellbeing was partially mediated by control-dependent PEI variables. This finding supports Warr's (1987, 1994) assertion that control is a fundamental component of psychological wellbeing.

CHAPTER SIX: DISCUSSION

6.1 Overview

The purpose of the present study was to investigate the impact of workplace stressors upon psychological wellbeing in a work role considered to epitomise the New Labour Market. Two 'situational elements' models were compared on the basis of their explanation of context-free and job-related psychological wellbeing in two samples of inbound call centre operators working under the same organisational context and undertaking the same work routine. Operators in both samples were in their mid-thirties, had completed secondary school, and had been in their job between two and two and a half years. In both samples, there were many more females than males, consistent with other studies finding a predominance of females in inbound call centres (e.g., Callaghan & Thompson, 2002; Lewig & Dollard, 2003; Taylor & Bain, 1999; Zapf et al., 2003). The cross-sectional replication design provided an opportunity to observe common trends between the samples, adding to the validity of inferences made in respect of associations between model and psychological wellbeing variables. The replicated findings were that the Social Reference variables were most important to the prediction of context-free psychological wellbeing, whereas Social Reference and Job Scope variables were important to the prediction of job-related psychological wellbeing. In addition to the replication of sample one, the analyses of sample two were extended to include an investigation of job involvement including preferred work hours and tenure commitment. These findings are discussed in light of the hypotheses, before methodological strengths and weaknesses of the study are considered. Recommendations for interventions and future directions for research in this field conclude the chapter.

6.2 The Psychological Wellbeing Of Call Centre Operators

From the review in Chapter One, it was evident that call centre operators carry out a repetitive, monotonous routine in front of a Visual Display Terminal (VDT) for the entirety of their shift. Also evident was the need to engage in 'emotional' labour to deliver numerous positive telephone-based customer service contacts. In addition, mutually incompatible expectations of high call volumes and high quality service, together with a high level of automation (e.g., automated call routing) and external (managerial) control enforced through electronic performance monitoring systems, intensifies the work load leaving the operator "…mentally, physically and emotionally exhausted…" (Taylor & Bain, 1999, p. 115).

Bakker et al (2003) found that the consistently high demands of call work led to a chronic state of resource depletion, and a higher frequency of absences. This constant resource depletion may be similar in effect to continuous exposure to stressors reported in experimental studies. These effects include chronically elevated blood plasma levels of catecholamines and cortisol – a state that has been implicated in a greater susceptibility to infectious disease, cardio-vascular disease and malignant cancer (Fisher, 1989). It is noteworthy that the call centres investigated in the present study allocated twice as many days sick leave per year for their operators compared to other work roles in the same company (Norford, 2001).

In addition to the challenge of maintaining a continuous application to task, Mulholland (2002) and others (e.g., Lewig & Dollard, 2003; Zapf et al., 2003) have implicated emotional labour in the work role as adding to the intensity of call work. Other studies have implicated the intensified demand upon mental, physical and emotional resources of operators in shorter projections of tenure (Kleemann & Matuschek, 2002; Russell, 2002; URCOT, 2000), higher rates of absence frequency (Deery et al., 2002) and

high rates of turnover (Bryant, 2002; Kleemann & Matuschek, 2002). The consensus of opinion in the literature is that the call centre operator work role has deleterious consequences for the psychological wellbeing of operators.

The psychological wellbeing of the call centre operators investigated in the present study is discussed in this section. While there were no significant between-sample differences in reported levels of psychological distress and job satisfaction, significantly higher levels of life satisfaction were reported in sample two compared to sample one. Overall, hypothesis one, that compared to other employed samples call centre operators would report significantly lower levels of psychological wellbeing, was partially supported.

6.2.1 Levels of Psychological Distress

On average, call centre operators in both samples of the present study reported an experience of psychological distress that fell in the range typically expected of an unhealthy unemployed population, using criteria provided by Banks et al. (1980) and adopted by others (e.g., Pernice et al., 2000). On average, the operators in both samples of the present study reported significantly higher levels of psychological distress compared to other employed samples (e.g., Banks et al., 1980; Evans, 1986; Evans & Haworth, 1991; Hepworth, 1980; Iversen & Sabroe, 1988), supporting hypothesis one, that operators would report significantly lower levels of psychological wellbeing relative to normative (employed) data.

In addition, nearly one third of the operators in both samples were at risk for minor psychiatric morbidity, using the conservative 'case-ness' criterion recommended by Hardy et al. (1999). Compared to Australian community base-rate data (e.g., Finlay-Jones & Burvill, 1977) and British employed samples (Hardy et al., 2003; Payne, 2001) a higher

proportion of the call centre operators in both samples of the present study were at risk of minor psychiatric morbidity.

6.2.2 Levels of Life Satisfaction

On average, respondents in both samples reported significantly greater life satisfaction compared to the small sample of UK public servants ($N = 36$) investigated in Evans (1986), a finding to the contrary of hypothesis one. Despite this between-studies difference, the interpretation common to both samples of the present study and to the sample in Evans (1986) was that respondents indicated moderate life satisfaction.

The finding that the call centre operators were (on average) moderately satisfied with their lives yet at risk of minor psychiatric morbidity, may be indicative of a difference between the process of considering satisfaction with global non-job life facets and the direct report of symptom experience. While this may be the case, a consistent low-to-moderate bivariate relationship was detected between life satisfaction and psychological distress suggesting that where operators reported lower levels of one, they also tended to report lower levels of the other. A more likely explanation may come from the restricted range of response options on the TLS. Upon closer inspection of the rating scale, it was noted that the ascending order from the midpoint 'Not Sure' jumps to 'Moderately Satisfied' before 'Very Satisfied' and 'Extremely Satisfied'. Therefore, operators had little choice if they were sure about their level of life satisfaction – they were forced to then indicate a moderate (or higher) level of satisfaction, unable to indicate low levels of life satisfaction.

6.2.3 Levels of Job Satisfaction

On average, respondents in both samples of the present study reported a low level of job satisfaction. Compared to the total combined employed group in the MSQ-SF

standardisation sample (Weiss et al., 1967) and the group of nurses in Schleicher et al (2004), average general job satisfaction was significantly lower for the respondents in the present study. This finding was consistent with previous research finding lower job or task satisfaction under conditions either at other call centres, or indicative of call centre operations. In particular, a heightened awareness of electronic performance monitoring (Aiello & Kolb, 1995; Stanton & Barnes-Farrell, 1996; Taylor & Bain, 1999), less control over the pace of work due to the automated routing of calls (Taylor & Bain, 1999), heightened demand for availability (e.g., Mulholland, 2002) and higher levels of incongruence between quantitative and qualitative expectations (Callaghan & Thompson, 2002; De Ruyter et al., 2001; Gilmore, 2001; Mulholland, 2002; Taylor & Bain, 1999) have been accompanied by lower reported levels of job satisfaction.

Upon closer inspection of the subscales within the MSQ-SF, it was apparent that the overall finding for general job satisfaction was markedly influenced by low satisfaction with 'intrinsic' aspects of the work. Intrinsic aspects of the call centre work operator work role include the pace of tasks, use of existing skills, task variety, autonomy, job security and feelings of accomplishment. Compared to the MSQ-SF standardisation sample, the respondents in both samples of the present study indicated significantly lower levels of intrinsic job satisfaction. By contrast, in both samples of the present study, levels of satisfaction with 'extrinsic' work role factors such as remuneration, working conditions and the competence of supervisors were equivalent to those found in the standardisation sample. Therefore in respect of job satisfaction, the difference between the 1967 standardisation sample and the call centre operators in the present study was lower satisfaction with operational requirements of the work role.

In the present study, the finding of low job satisfaction yet moderate life satisfaction may also be somewhat attributable to restricted response options on the TLS

rating scale. This may have also contributed to the inconsistent results found in respect of the bivariate association between life and job satisfaction, where this association was significant and interpretable in sample two only. While not supportive of a consistent positive relationship between life and job satisfaction as previous research had indicated (e.g., Judge & Watanabe, 1993; Rain et al., 1991), these findings may be considered supportive of the notion that job satisfaction represents only one aspect of life satisfaction (e.g., Near et al., 1984). The inconsistent bivariate findings may also be explained by the possibility that operators may have been satisfied with their lives, due to the consequences of receiving an income from the job, yet not be satisfied with the operational characteristics of the job. Income from the job may enhance the perception of status in their general life circumstance leading to higher levels of life satisfaction through the provision of greater affordability of a higher standard of living than that achieved under conditions of unemployment.

Although not consistently related to life satisfaction, job satisfaction was consistently negatively related to psychological distress, to a low-to-moderate extent. Perhaps indicative of the reaction to the job, where respondents were less satisfied with their job, they also reported more symptoms indicative of minor psychiatric morbidity.

6.3 Situational Elements of the Call Centre

In this section, average scale values for the model variables (referred to here as 'situational elements') are discussed using the themes identified earlier. On the whole, average scale values were strikingly similar across both samples. In fact, interpretations for the average scale values within both models were equivalent between samples. Moving on from descriptive interpretations, consistent bivariate inter-relationships within each model are also discussed. While none of the inter-relationships among ACE model variables were sufficiently high to incur multicollinearity in the subsequent regression analyses, the same

could not be said of the PEI model. The consistent high positive relationship between *Environmental Clarity* and *Valued Social Position* suggested a potential for multicollinearity where they were included in the entire PEI model predictions of psychological wellbeing, a problem not previously identified in studies investigating the PEI model (e.g., Bryce & Haworth, 2003; Haworth et al., 1997; Haworth & Paterson, 1995).

6.3.1 Descriptive findings for Social Reference

The situational elements considered most representative of Social Reference were *Social Status*, *Collective Purpose* and *Social Contact* for the ACE model, and *Valued Social Position* and *Opportunities for Interpersonal Contact* in the PEI model. In both models, call centre operators reported very few opportunities for social contact during the day. In addition, operators indicated low access to experiences enhancing their social standing and perceived involvement in a collective contribution to community. Overall, the consistent finding for both models was that the call centre operators investigated in the present study experienced few opportunities providing the social reference that Jahoda (1981) implicated as important to psychological wellbeing.

These findings are consistent with the simplified and intensified design of the call centre operator work role, reviewed in Chapter One. In particular, that time-demands for on-task availability (Knights & McCabe, 2003) and the individualised performance climate (Korczynski, 2002; Mulholland, 2002; Taylor & Bain, 1999) perpetuated by extensive monitoring practices (Taylor & Bain, 1999; Van den Broek, 2002), lead to fewer episodes of co-worker contact (O'Driscoll & Beehr, 1994). In the call centres investigated in the present study there was an additional stipulation that operators be on-task for 98% of their paid work time, and their availability for call work was monitored to the minute. Under these conditions, fewer episodes of co-worker contact during the day may potentially result

in a diminished capacity for social comparison, culminating in fewer experiences that help gauge one's social value. In addition, the simplified repetitive nature of the work is also likely to have contributed to a negative appraisal of status derived from the work role. Both the individual performance accountability focus and simplified repetition of call work may also have led to operators reporting lower perceived enmeshment in a social collective, less of a sense of making a socially valuable contribution to their community.

6.3.1.1 Inter-relationships with model variables

In the ACE model, the common finding across both samples was that to a low extent, where operators reported a lower perceived involvement in a collective contribution to community, they also tended to report lower social interaction during the day and lower social standing. However, while a relationship between opportunities for social contact and perceived social standing is intuitively appealing (since without social interaction social comparison is difficult), lower reported experience of social interaction during the day was associated with a lower perceived social standing in sample two only. This finding may indicate that social standing is more consistently related to status derived from the job rather than by comparison to others. Interestingly, the merging of *Social Status* and *Collective Purpose* to form *Valued Social Position* in the PEI model, led to a reduction in sensitivity to these subtle differences. Accordingly, a low-to-moderate positive relationship was consistently found between *Valued Social Position* and *Opportunities for Interpersonal Contact*, suggesting that indeed a lower perceived social standing and lower involvement in a collective purpose was associated with fewer opportunities for social contact. The findings from both models support the social reference grouping of these variables.

Consistent positive relationships were also found between the social reference and job scope variables in the PEI model. While a consistent low-to-moderate relationship was

found with *Opportunities for Interpersonal Contact*, *Valued Social Position* was consistently related to *Environmental Clarity* to a high extent of association. Overall, where operators indicated fewer opportunities for social contact during the day, they also tended to report less clarity for how to derive social value and meet the performance expectations within the work environment. The consistently high extent of association between these variables suggests a convergence upon a common underlying construct, raising the potential for multicollinearity in the subsequent regression analyses.

Social Reference was also related to *Opportunities for Skill Use* to a low-to-moderate extent. Where operators reported fewer opportunities for social contact, they also reported fewer opportunities for the use and extension of existing skills, suggesting that interpersonal interaction skills are utilised to a low extent, and that lower contact with work colleagues may actually prevent skill acquisition. In addition, where fewer skills are used or added to, operators also perceived a lower social standing and a lower contribution to community. This latter finding is consistent with those reported in Xie and Johns (1995).

Opportunities for Interpersonal Contact was also consistently related to *Opportunities for Control* and *Variety*, to a low-to-moderate extent of association. Lower levels of social contact during the day were associated with less variety and lower perceived control in the work routine. Fewer interpersonal interactions with colleagues may result in fewer opportunities for validation of the difficulties associated with call work. Fewer opportunities for co-worker interaction may also lead to lower levels of instructional social support (e.g., Cohen & Wills, 1985) that may (inturn) contribute to a perception of greater control over the work routine.

6.3.2 Descriptive findings for Job Demands

The simplified routine of the call centre operator is accompanied by expectations of a high rate of task completion, consistent with the principles of mass production (Russell,

2002) and scientific management (Taylor, 1911/ 1997). The consensus of opinion in the literature provided in Chapter One converges on negative implications for the high quantitative demand in the call centre. In particular, thinking demands (Macdonald, 2003) and "improvisational choreography" (Whalen et al., 2002, p. 246) per call requires a constant level of activation and alertness that is difficult to maintain throughout the day (e.g., Smith, 1995). Extensive monitoring practices can also contribute to perceived work pressure, with negative consequences for affective wellbeing, including job satisfaction (Holman et al., 2002). The constant use of VDTs for all on-task activities within the call centre are likely to lead to eye-aches, headaches (e.g., Bramwell & Cooper, 1995) and other physical symptoms (Kleemann & Matuschek, 2002; Sawyer et al., 2002). In addition, the operators in the present study regularly received emotionally charged calls from desperate welfare customers requiring an emotional labour that is pressured by the need to end the call quickly before re-engaging the same 'surface act' with the next customer. Evidence suggests that the intensity of job demands within the call centre is mentally, physically and emotionally exhausting (Taylor & Bain, 1999).

The scales considered most representative of these job demands within the models investigated were *Activity* and *Time Structure* from the ACE model, and *Externally Generated Goals* from the PEI model. At most, the average scale values for these variables indicated only moderate levels of job demands. Given the high demands of call work, higher levels of job demands were anticipated. Considering the low internal consistency of these scales, the present findings suggest that job demands may not have been adequately measured by the current versions of the ACE and PEI scales. Therefore, the findings of the present study support the call from Creed and Machin (2003) for a review of item content of the ACE scales, most notably *Activity* and *Time Structure*. Further, there is also a need to re-examine the item content of the PEI scale *Externally Generated Goals*.

6.3.2.1 Inter-relationships with other model variables

The consistent relationship between *Activity* and *Time Structure* together with the absence of consistent relationships with the other ACE scales supports the grouping of these variables. In addition, *Externally Generated Goals* was not related to any other PEI. While this latter finding is contrary to the established relationship between job demands and control (e.g., Karasek, 1979, 1989), the poor internal consistency of the PEI scale *Externally Generated Goals* suggests that no conclusions should be drawn about this relationship. Overall, job demands were not adequately represented in the present study.

6.3.3 Descriptive findings for Job Scope variables

In both samples, the diversity of experience within the daily routine (*Variety*), and control over the order and process of work tasks (*Opportunities for Control*) were among the lowest reported (average) quantities of all the situational elements. This finding was congruent with descriptions of the work role reviewed in Chapter One (e.g., Taylor & Bain, 1999; Zapf et al., 2003). In particular, the stipulation of call process including when, and when not to divert calls, automated call routing, electronic performance monitoring specifically attuned to call volume, duration and availability (Witt et al., 2004), and qualitative expectations of call quality (Callaghan & Thompson, 2002; Gilmore, 2001; Mulholland, 2002). In the call centres investigated in the present study, operators were also required to adhere to call 'standards', which included guidelines on how to process enquiries specific to a prescribed information space (R.Chapman, Personal Communication, 18 August 2003).

On average, operators also reported low to moderate use and extension of existing skills (*Opportunities for Skill Use*), indicating a lack of challenge to existing skills and limited opportunity for the development of new skills. Working a limited range of enquiry content within their assigned information portal, existing skills are unlikely to be

'stretched' and new skills are unlikely to be developed. While there were no data available about the organisational practices of management in respect of skill and career development, these appear incompatible with the business demand for availability. However, at the call centres investigated in the present study, management did endorse opportunities for temporary movement to another content-specific portal to develop skills in that area. This policy was framed in terms of coverage of operator absenteeism and was not available to all operators.

Operators also consistently reported low to moderate clarity for how to meet work expectations (*Environmental Clarity*). This finding is interesting given the specifications and emphasis upon performance benchmarks such as call volume, and the simplified job process (answering similar enquiries). Under these conditions, clarity for how to meet quantitative performance expectations should be high. The lesser finding for *Environmental Clarity* may be attributable to the competing demands for quality customer service, elsewhere considered as role conflict (e.g., De Ruyter et al., 2001). As discussed in Chapter One, the conflict between the mutually incompatible performance demands (quantity versus quality), the impact of customer and enquiry characteristics, and the quality of supervisory feedback are factors likely to have reduced the clarity for how to meet performance expectations, leading to the low to moderate levels of *Environmental Clarity* reported.

6.3.3.1 Inter-relationships with other PEIs

Not surprisingly, lower reported levels of variety within the work routine were strongly related to fewer opportunities for the use and extension of existing skills. In previous research investigating the situational elements of work, job characteristics similar to these two variables have been combined to form a variable known as *Skill Variety* (e.g., Hackman & Oldham, 1976; Xie & Johns, 1995). The consistent relationships between

these variables and *Opportunities for Control*, suggests that fewer discretionary responsibilities may accompany the perception of a lower challenge to existing skills and less diversity in the work routine. In addition, where operators indicated less clarity for work expectations they also indicated less control over the work routine. Less clarity for how to meet work expectations were also consistently related to the limited use and extension of existing skills. In the muddle of difficult performance expectations, restrictions in skill use or development does not allow for the generation of alternative strategies for meeting performance expectations and less clarity for how to meet these expectations is reported.

6.3.4 Descriptive findings for Environmental Integrity

On average, operators in both samples indicated a moderate availability of money, and a low-to-moderate experience of *Physical Security*. According to their responses, the integrity of their environment was maintained through an adequate availability of money, together with few physical discomforts and a low perceived threat of harm despite not being sure whether the world was a safe place to live.

6.3.4.1 Inter-relationships with other PEIs

Although these variables were considered part of a theme of environmental integrity they were not consistently related. In fact, *Money* was not related to any other PEI. However, where operators indicated less clarity for how to derive social value and meet performance expectations in the work environment (i.e., lower *Valued Social Position* and lower *Environmental Clarity*), they also indicated greater discomfort and lower levels of safety and security. In addition, where operators indicated lower clarity or perceived control over the work routine, they also indicated less *Physical Security* in the work environment. Alternatively, a higher level of confidence in one's ability to meet the

performance expectations of the work environment, together with a higher perceived social standing and enmeshment in a collective purpose, were associated with a greater perceived connection to community and a smaller perceived threat to one's security and safety.

6.4 Relationships between the situational elements and psychological wellbeing

6.4.1 Relationships with Psychological Distress

All model variables representing the theme of social reference were consistently negatively related to psychological distress. In respect of bivariate relationships with the ACE model, psychological distress was consistently related to *Social Status* to a low-to-moderate extent, and *Social Contact* and *Collective Purpose* to a low extent. In the PEI model, consistent bivariate relationships with psychological distress were found for *Valued Social Position* to a moderate extent, and *Opportunities for Interpersonal Contact* to a low-to-moderate extent. A consistent moderate bivariate relationship was also found between psychological distress and *Environmental Clarity*, a variable also implicated in the theme of social reference owing to the consistent, high inter-correlation between *Valued Social Position* and *Environmental Clarity*. Where operators reported few opportunities for social contact, lower clarity for how to derive social value and meet performance expectations of the work environment, they also reported higher levels of psychological distress.

Low consistent bivariate relationships were also detected between psychological distress and *Opportunities for Control* and *Physical Security*, suggesting that operators experienced higher levels of psychological distress where they had limited control over their work routine, and where they perceived lower comfort, safety and security. None of the other situational elements investigated held consistent bivariate relationships with psychological distress.

In respect of consistent multivariate relationships, those variables relating to the theme of social reference were most prominent in the entire model predictions of

psychological distress. In respect of the ACE model, *Social Status* and *Collective Purpose* made consistent contributions to the entire model prediction of psychological distress, congruent with some previous research (e.g., Creed and Macintyre, 2001), but not others (e.g., Creed & Watson, 2003). However, the discrepancy between the present study and Creed and Watson (2003) may be attributable to their use of different measures to investigate the ACE categories within a heterogenous unemployed population.

In the present study, support for the prominence of social reference was also evident in the PEI model, where *Valued Social Position*/*Environmental Clarity* consistently made significant contributions to the PEI model prediction of psychological distress. This finding was congruent with Bryce and Haworth (2003) who also found that *Valued Social Position* was consistently predictive of job-related anxiety and depression across their female and male samples. Overall, the finding from the present study was that lower reported clarity for how to derive social value and meet performance expectations in the call centre was predictive of higher levels of psychological distress.

The absence of a consistent relationship between *Money* and psychological distress was consistent with previous research investigating the PEI model (e.g., Haworth & Paterson, 1995). This finding is interesting given the theoretical implications of a relationship between availability of money and psychological wellbeing, particularly in respect of personal agency (e.g., Fryer, 1986). Among the unemployed, a low availability of money (financial strain) had previously been reported as significantly predictive of psychological distress (e.g., Creed & Macintyre, 2001). The findings from the present study suggest that the higher availability of money (and therefore greater personal agency) experienced from participation in employment has reduced the importance of this variable in the prediction of psychological distress.

The absence of consistent predictions from the other situational elements suggests these variables were not so important to the entire model predictions of psychological distress. While not prominent within the entire PEI model prediction of psychological distress, perceived control over the work routine was still found to be important to the prediction of psychological distress, albeit indirectly. Following the regression analyses of sample two, path analyses found that *Environmental Clarity* and *Valued Social Position* mediated the contribution made by *Opportunities for Control* to the PEI model prediction of psychological distress.

6.4.2 Relationships with Life Satisfaction

In relation to Social Reference, *Social Status* and *Social Contact* held consistent bivariate relationships with life satisfaction for the ACE model, while *Environmental Clarity/ Valued Social Position* and *Opportunities for Interpersonal Contact* were consistently related to life satisfaction in the PEI model. To a low-to-moderate extent, lower clarity for how to derive social value and meet the expectations of the work environment, and (to a lesser extent) fewer opportunities for social contact, were consistently related to lower levels of life satisfaction.

For the PEI model, consistent bivariate relationships were also found between life satisfaction on the one hand, and *Opportunities for Control*, and *Money* and *Physical Security* on the other. These findings suggest that operators were less satisfied with their lives where they also perceived low control over their work routine, low availability of money and low levels of comfort, safety and security in their environment. There were no other consistent bivariate relationships between model variables and life satisfaction.

Amidst considerable differences in the contributions made by ACE model variables to the entire model prediction of life satisfaction, two consistent findings emerged. While *Collective Purpose* was not related to life satisfaction in either sample, *Social Status*

consistently made significant contributions to the ACE model prediction of life satisfaction, congruent with the findings of Haworth and Paterson (1995). Lower perceived social standing was predictive of lower life satisfaction. This finding is consistent with the theory of social comparison provided by Veenhoven (1996), where life satisfaction is dependent upon a favourable review of one's social worth, of one's social standing compared to others. It is notable that in the present study, social standing related more strongly to status acquired on the job than frequency of social contact. In this context, it is not surprising that a positive review of where one lives, the neighbourhood, financial status and other aspects pertaining to status contained within the life satisfaction measure were strongly associated with perceived social standing. In the present study, lower perceived social standing was predictive of lower levels of reported life satisfaction.

The pattern of multivariate association of ACE model variables to life satisfaction was markedly different between samples. While *Social Contact* also provided a large and significant contribution to the entire ACE model prediction of life satisfaction in sample one, it made little contribution to the same prediction in sample two. Similarly, *Activity* and *Time Structure* made significant contributions to the ACE model prediction of life satisfaction in sample one only. While the finding for *Time Structure* was congruent with the bivariate association in sample one, the finding for *Activity* was different to the bivariate data that suggested no relationship with life satisfaction in either sample. Overall, the between-samples difference in pattern of multivariate association between model variables and life satisfaction points to a lack of stability in the ACE model prediction.

The pattern of multivariate association between PEI model variables and life satisfaction was less variable. In fact, *Money* and *Environmental Clarity* were consistently prominent in the PEI model prediction of life satisfaction. While these findings were consistent with the findings of Haworth et al. (1997), another PEI study reported that only

Valued Social Position was a significant predictor of life satisfaction (e.g., Haworth & Paterson, 1995). More recently, Bryce and Haworth (2003) reported that only *Money* was a significant predictor of life satisfaction for their male sample and that none of the PEIs were predictive of life satisfaction for their female sample. The mixed findings of previous PEI model predictions of life satisfaction may have been attributable to different work contexts, small sample sizes (Haworth & Paterson, 1995; Haworth et al., 1997) and multicollinearity effects (Bryce & Haworth, 2003; Haworth & Paterson, 1995; Haworth et al., 1997). The present study was designed to minimise the effects of these confounding variables.

Upon exclusion of *Environmental Clarity* from the PEI model predictions (hereafter referred to as the excluded PEI model), a more complicated finding emerged. Contrary to expectations, *Valued Social Position* provided a significant contribution to the excluded model prediction of life satisfaction in sample one only. Although *Environmental Clarity* and *Valued Social Position* had been largely interchangeable in the PEI model prediction of psychological distress, the same was not true in the prediction of life satisfaction in sample two, suggesting that the effect of their substantial inter-relatedness upon the PEI model prediction varied between samples and between measures of psychological wellbeing. However, the connection between *Environmental Clarity* and situational elements relating to the theme of Social Reference seemed to be maintained in the excluded model prediction of life satisfaction in sample two where *Opportunities for Interpersonal Contact* became a significant predictor. Therefore, fewer opportunities for social reference and less clarity for work expectations were consistently predictive of lower levels of life satisfaction.

A higher availability of money was consistently predictive of higher levels of life satisfaction, congruent with previous research (e.g., Haworth & Ducker, 1991; Haworth et

al., 1997). In contrast to Bryce and Haworth (2003) who found that *Money* was uniquely predictive of life satisfaction for their male sample only, the findings from the present study suggest that *Money* is also important to the life satisfaction of two predominantly female samples of call centre operators. In line with Fryer's (1986) personal agency theory, the present findings suggest that by having more money to support social activity (e.g., restaurant outings, family holidays) and to provide financial security for the future (e.g., mortgage servicing, retirement), operators were more satisfied with their lot in life. It is also likely that having more money offers increased status through the affordability of a more luxurious home, living in a better neighbourhood, and so on. Therefore, improving personal agency through access to the manifest function of call centre employment enhanced the life satisfaction of call centre operators. It is notable however, that while Fryer (1986) argued that compared to the latent functions, deprivation from the manifest function of work was most important to the psychological wellbeing of the unemployed, the evidence from both samples of the present study is that the latent functions specifically relating to social reference were at least equivalent to the perceived availability of money in extent of association with life satisfaction.

Despite the consistent bivariate relationship, the regression analyses found that *Opportunities for Control* did not make a statistically significant unique contribution to the PEI model prediction of life satisfaction in either sample. Upon further investigation of these findings in sample two, the relationship between life satisfaction and *Opportunities for Control* was found to be mediated by *Environmental Clarity* and *Opportunities for Interpersonal Contact*. While the indirect effect was larger than the direct effect, consistent with previous research (e.g., Haworth et al., 1997), the finding suggested that *Opportunities for Control* was indirectly important to the prediction of life satisfaction to a modest extent only. That said, the presence of *Variety* in the path analyses actually

detracted from the indirect effect – a finding not reported in previous research (e.g., Bryce & Haworth, 2003). Considering the substantive indirect paths, the relationship between perceived control over the work routine and life satisfaction appears to have been mediated by clarity for work expectations and opportunities for social contact. Therefore, perceived control over the work routine was indirectly associated with life satisfaction.

6.4.3 Relationships with Job Satisfaction

Owing to the greater number of multivariate relationships found between the situational elements and job satisfaction, the following discussion is structured according to the content themes utilised earlier.

6.4.3.1 Social Reference and Job Satisfaction

In respect of the ACE model, job satisfaction held a consistent moderate bivariate relationship with *Social Status*, and consistent low-to-moderate bivariate relationships with *Social Contact* and *Collective Purpose*. Similarly, in the PEI model, consistent bivariate relationships were detected between job satisfaction and *Valued Social Position*/ *Environmental Clarity* (to a moderate extent) and *Opportunities for Interpersonal Contact* (to a low-to-moderate extent). Where operators reported fewer experiences of social reference, they also reported lower levels of job satisfaction.

In respect of multivariate associations with job satisfaction, *Social Contact* was a consistently strong predictor and *Social Status* also made a consistent contribution to the ACE model prediction of job satisfaction. After a non-significant contribution in sample one, *Collective Purpose* provided a statistically significant contribution to the ACE model prediction of job satisfaction in sample two. A self-reflection of a positive contribution to community may have been more highly valued by the respondents in sample two, having a greater impact upon their reported levels of job satisfaction.

In respect of the PEI model, *Valued Social Position*/*Environmental Clarity* was strongly predictive of job satisfaction in both samples, implicating the importance of clarity for how to derive social value and meet performance expectations within the work environment. These findings were congruent with Bryce and Haworth (2003) who reported that *Valued Social Position* was a significant predictor of job satisfaction for their male and female insurance sales/ clerical workers.

Interestingly, while *Social Contact* was consistently predictive of job satisfaction within the ACE model, the PEI *Opportunities for Interpersonal Contact* was not significantly predictive of job satisfaction in either sample. This between-models difference may be attributable to the inclusion of other variables in the PEI model, going beyond the reach of the ACE model. That said, the consistent finding for each model was that the call centre operator work role provides few of the components required to meet Jahoda's (1981, 1982) conceptualisation of work as a social institution.

Recall from Chapter Two, that Jahoda (1981, 1982, 1992) believed employment to fulfil a psychological need for the social connection of individuals to society. More specifically, Jahoda (1981, 1982) suggested that being compelled to attend and process activities in an employment context (to maintain an income) enabled the experience of important social consequences. Described in this thesis as situational elements relating to a theme of Social Reference, these social consequences include contact with people met as part of the job (providing a comparison of oneself to others), working towards a collective purpose and providing a positive contribution towards the benefit of their community (providing a sense of social enmeshment, acceptance), and being able to ascertain a social value for one's input to this context (providing a sense of social status). Consistent with the call centre literature, the evidence from the present study is that the job design of the call centre operator work role restricts opportunities for Social Reference. In keeping with

Jahoda's (1981) deprivation theory, fewer experiences enabling a Social Reference were predictive of lower levels of job satisfaction.

6.4.3.2. Job Demands and Job Satisfaction

Of the three variables representing job demands, only *Activity* held a low consistent bivariate relationship with job satisfaction. Neither *Time Structure* nor *Externally Generated Goals* held consistent and interpretable bivariate relationships with job satisfaction. In respect of multivariate relationships, none of the job demands variables were consistently predictive of job satisfaction. Further, *Externally Generated Goals* was not a significant predictor in either sample.

Although the contribution of *Time Structure* to the ACE model prediction of job satisfaction was not significant in either sample, the regression coefficients for this variable were equivalent between samples. The point of interest here is that the regression coefficients for *Time Structure* were also in a negative direction, suggesting that greater time-dependent availability requirements were associated with lower job satisfaction. The direction of this finding was not surprising given the extent to which the call centre operator work role is dependent upon a time structure. Performance expectations within the work role converge upon the time taken to process calls and there are constant time demands regarding operator availability from commencement through to the end of the work shift each day. The requirement for strict adherence to a time-dependent schedule of availability consistently applies a pressure to the operators that might be expressed in a negative affective review of their job. Such a finding would be consistent with Holman et al (2002) who reported that an increased perception of pressure in the call centre operator work role was associated with low job satisfaction. While an independent predictive relationship for *Time Structure* cannot be inferred from these data, the low finding might be somewhat attributable to the low internal consistency of the scale, a criticism

vehemently expressed by Creed and Machin (2003). This finding needs further exploration following future research addressing the inadequacies of this scale.

6.4.3.3 Job Scope and Job Satisfaction

All four Job Scope variables held consistent bivariate relationships with job satisfaction. *Variety* and *Opportunities for Skill Use* held consistent moderate-to-high bivariate relationships with job satisfaction, and *Environmental Clarity* (to a moderate extent) and *Opportunities for Control* (to a low-to-moderate extent) were also consistently related to job satisfaction. Where they reported less job scope, operators were also less satisfied with their jobs.

In respect of consistent bivariate relationships, where operators in the present study reported fewer opportunities for the use and extension of existing skills (*Opportunities for Skill Use*), or where they reported a limited diversity within the work routine (*Variety*), they also reported lower job satisfaction. Consistent with the review of the call centre literature in Chapter One, it may be argued that the constricted, simplified and repetitive nature of the call centre operator work role apparently lacks stimulation in respect of the breadth of activity and opportunities for extending oneself beyond existing skills. Findings in the present study suggest job satisfaction is likely to be lower under these conditions.

Lower reported clarity of how to meet the expectations of the work environment (*Environmental Clarity*) was also associated with lower reported job satisfaction. Even though work task units are limited to a particular content-specific information portal and the expectations for call volume are clearly defined, the competing demand for quality customer service may confound the clarity for how to achieve these quantitative performance expectations. The obstacles to meeting quantitative benchmarks are potentially even greater in respect of customer characteristics that decrease

comprehensibility and increase call duration. It is possible that these job characteristics might also have resulted in lower levels of job satisfaction.

In respect of multivariate associations with job satisfaction, *Variety* consistently provided the largest significant contribution to the PEI model prediction of job satisfaction. While significantly predictive of job satisfaction in the female sample of the Bryce and Haworth (2003) study, *Variety* was not significantly predictive of job satisfaction in their male sample. The replicated findings of the present study, together with the results reported in Bryce and Haworth (2003) suggest that in predominantly female samples engaging in white collar jobs, *Variety* is predictive of job satisfaction. This finding suggests that the limited task diversity and breadth of experience in call work discussed in Chapter One, was strongly associated with lower levels of job satisfaction.

In addition to the findings for *Variety* in the present study, *Opportunities for Skill Use* was also consistently predictive of job satisfaction, albeit to a lesser extent. Where operators reported less challenge in respect of the use and extension of existing skills, they also reported lower job satisfaction. Given the review in Chapter One, it is possible that the constricted, simplified and short-cycling repetition of call work may have reduced the challenge to existing skills, and the business priority towards productivity benchmarks may limit the investment in learning and career development. The data suggests that these job design restrictions may be implicated in lower reported levels of job satisfaction. The consistent bivariate relationship between *Opportunities for Skill Use* and *Opportunities for Interpersonal Contact* may also be interpreted such that the design and governance of the call centre operator work role inhibits skill acquisition through restricting contact with co-workers. Overall, the multivariate relationships between job satisfaction and both *Variety* and *Opportunities for Skill Use* imply a need for stimulation and job challenge, diversity of

work task experiences and opportunities for career progression for optimal psychological wellbeing at work.

Automated call routing, specific operational processes per call, and the ongoing demand for task availability indicated of the call centre operator work role by the call centre literature (see Chapter One) may provide little latitude for operators to pace themselves, or to find their own ways of meeting productivity expectations. Under these conditions, operators are likely to report low control over the work process, and this was indeed a finding of the present study. However, in contrast to the depiction of powerlessness and an absolute absence of autonomy in call work (e.g., Fernie & Metcalfe, 1997: cited in Taylor & Bain, 1999), Taylor and Bain (1999) found that the operators who participated in their large scale study (conducted in 1997) engaged in a manipulation of computer telephony to purposefully resist job demands and maintain a degree of personal control. While Taylor and Bain (1999) found that their operators were not powerless and did in fact exercise some operational control, more recent technological advances in monitoring practices (detecting calls re-directed to the waiting queue and accounting for post-call administration times) is likely to have reduced the capacity for operators to manipulate operations in order to preserve their personal control over work processes (e.g., Mulholland, 2002). Therefore, low levels of perceived control over the work role may be implicated in lower reported levels of job satisfaction.

Although the regression analyses involving the entire PEI model found that *Opportunities for Control* was not a consistent predictor of job satisfaction in both samples of the present study, path analyses later revealed that this finding was attributable to mediation effects through indirect paths of association. Low perceived control over the work routine was important to the PEI model prediction of job satisfaction, albeit indirectly. The substantive indirect paths from *Opportunities for Control* to job satisfaction

were found through *Variety*, *Opportunities for Skill Use*, and *Valued Social Position*. These indirect paths suggest that where operators reported low perceived control at work, they also reported low job satisfaction, where they also reported a restricted breadth of diversity and challenge within the work routine, and lower perceived status acquired from the work role. Overall, low Job Scope within the call centre operator work role was predictive of low job satisfaction.

The question of why Job Scope may be important to job-related psychological wellbeing has not been universally understood. Most often, researchers have pointed to individual factors including an unmet need to have job scope. Examples of such explanations include a mismatch of a person to the work environment (e.g., French, Rogers & Cobb, 1980), or an undersupply of desired job characteristics where "…the job is simpler than one prefers…" (Shaw & Gupta, 2004, p. 848). In respect of skills extension and career development, others have implicated dispositional factors including 'Growth Need Strength' and 'Upward Striving' in their explanation for why low job scope predicted lower levels of intrinsic work motivation and higher levels of turnover intent (Houkes, Janssen, De Jonge, & Bakker, 2003). The consensus of opinion in the literature seems to be that where a job is low in scope, it is less interesting, stimulating and captivating, and individuals respond with a congruent level of enthusiasm for work tasks, reflected in lower reported levels of job satisfaction. In the call centre, the simplified nature of call work is likely to have led to lower levels of intrinsic work motivation, which has an associated impact on job satisfaction (e.g., Campion, 1988), job performance (Shaw & Gupta, 2004), organisational commitment and withdrawal behaviour (e.g., Houkes et al., 2003). As applied to the call centre, the simplification principle of Taylorist job design appears to have overlooked the ability of inspired workers to assist in productivity gains.

6.4.3.4 Environmental Integrity and Job Satisfaction

In respect of bivariate relationships, *Money* was not consistently related to job satisfaction. The call centre operators in both samples of the present study tended to report lower levels of job satisfaction where they also reported less *Physical Security*, a finding not previously reported in previous research (e.g., Bryce & Haworth, 2003). In respect of multivariate relationships, while *Money* and *Physical Security* were not predictors of job satisfaction in sample one, they were significantly predictive of job satisfaction in sample two.

In respect of *Physical Security*, where respondents in sample two perceived greater safety and security within their environment, they also reported higher levels of job satisfaction. Given the two-year gap in data collection between sample one and sample two, the between-samples difference in this multivariate association may be attributable to changes in perceptions of environmental safety. In particular, respondents in sample two may have been more aware of potential threats to their environment, including terrorism given that the questionnaires were administered 18 months after the September 11 (2001) terrorist attacks on America. This elevated awareness for potential threats to their environment may have (vicariously) increased their sensitivity to aggressive customers. Consequently, the encounter of aggressive or threatening customers may have taken on greater significance for the respondents in sample two, an experience that might adversely affect perceptions of job satisfaction.

Unexpectedly, the finding for *Money* was in the negative direction, suggesting that greater availability of money was associated with lower job satisfaction in sample two. While the present finding in respect of *Money* was contrary to Bryce & Haworth (2003), it is supported by the consensus opinion from the call centre research literature (see Chapter One), that call centre operators are more likely to endure their jobs for the sake of earning

an income, rather than enjoy them (e.g., Callaghan & Thompson, 2002; Mulholland, 2002; Taylor & Bain, 1999). Perhaps, in spite of low satisfaction with the work, operators remained in their jobs for the greater availability of money it provides relative to unemployment. It may also have been the case that the availability of money for respondents in sample two was less dependent upon their job, influenced by other factors, such as having a partner who is the main 'bread winner'. It is therefore possible that respondents in sample two might have been financially secure, yet have reported low job satisfaction. It is notable that *Money* and *Physical Security* did not contribute to the findings in sample one, and as such may not be regarded as consistent predictors of job satisfaction in call centre operators.

6.5 Model Predictions of Psychological Wellbeing

In both samples of the present study, the ACE and PEI models were significantly predictive of psychological distress, life satisfaction and job satisfaction, providing support for hypotheses two and three. Upon consideration of strength and consistency of model predictions, the PEI model was considered a better predictor of life and job satisfaction, but not psychological distress, compared to the ACE model, thereby partially supporting hypothesis four.

6.5.1 Entire Model Predictions of Psychological Wellbeing

Adjusting for the different numbers of predictors contained within each model, the PEI model explained a consistently greater proportion of variance in reported levels of psychological distress (28% in sample one, 26% in sample two) compared to the ACE model (16% in sample one, 22% in sample two), although the between-models difference in strength of prediction was not statistically significant in either sample. In addition, no between-samples differences in extent of prediction were found for either model, implying

equivalence in the consistency of model predictions. Accordingly, both models were considered equivalent in their prediction of psychological distress.

In respect of life satisfaction, while the ACE model prediction (38%) was stronger than the PEI model prediction (30%) in sample one, the PEI model prediction (24%) was stronger than the ACE model prediction (17%) in sample two. Despite the variability in these findings, there were no statistically significant between-models differences in extent of prediction, in either sample. While the magnitude of both model predictions were lower in sample two, a statistically significant between-samples difference was detected for the ACE model. This suggests that the ACE model was not a consistent predictor of life satisfaction, and that the PEI model provided a more stable prediction of life satisfaction. The greater consistency in prediction of life satisfaction was attributed to the addition of *Environmental Clarity*, and the extension of the PEI model beyond Social Reference to include *Money*.

The PEI model provided a stronger prediction of job satisfaction (48% in sample one, 54% in sample two) than the ACE model (39% in sample one, 30% in sample two), a finding that was statistically significant in the larger sample two. In addition, there were no between-samples differences in extent of prediction for either model, implying a statistically equivalent stability of prediction. The consistent finding for the importance of situational elements relating to the theme of Job Scope suggests that the PEI model prediction of job satisfaction was stronger because of these additional situational elements. Given the greater power of inference associated with the larger size of sample two, these findings were interpreted such that the PEI model was a better predictor of job satisfaction than the ACE model.

6.5.2 Reduced Model Predictions of Psychological Wellbeing

In addressing recent concerns that job stress models may become less credible and less practically manageable due to increasing levels of complexity (Van Veldhoven, Taris, De Jonge, & Broersen, 2005), an attempt was made to find the most parsimonious set of predictors within each model. By using a Backwards Deletion statistical regression procedure, the best set of linear predictors within each entire model prediction of psychological wellbeing was uncovered. Parsimony was achieved where the resulting reduced models were found to be adequately representative of their respective entire model predictions for each measure of psychological wellbeing.

Only two (*Social Status*, *Collective Purpose*) of five ACE variables were found to be important to the ACE model prediction of psychological distress. The reduced PEI model combination of *Valued Social Position*, *Environmental Clarity* and *Opportunities for Control* suggested that six of the remaining PEI variables were not important to the prediction of psychological distress. In both formulations, the reduced model predictions were deemed at least equivalent to the entire model predictions of psychological distress. In addition to providing an adequate representation of the entire model predictions, the reduced models also proved stable upon cross-validation to the observed values of psychological distress in sample one. Therefore in both formulations, the reduced models were considered parsimonious representations of their respective entire model predictions of psychological distress. The situational elements relating to Social Reference were found to be most important to the prediction of psychological distress, and given their statistical equivalence, the reduced models from either formulation may be considered appropriate for use in future studies investigating psychological distress among call centre operators.

In respect of life satisfaction, the Backwards Deletion procedure found that only one (*Social Status*) of five ACE variables was important to the ACE model prediction of

life satisfaction in sample two. By contrast, the reduced PEI model combination of *Environmental Clarity* (and implicitly, the Social Reference associate *Opportunities for Interpersonal Contact*), *Money* and *Physical Security* suggested that five of the remaining PEI variables were not important to the prediction of life satisfaction. However, in both formulations, the reduced model predictions were not deemed equivalent to the entire model predictions of life satisfaction in both samples. While the reduced models of both formulations proved stable upon cross-validation to the observed values of life satisfaction in sample one, they could not be considered parsimonious representations of their respective entire model predictions of life satisfaction. Therefore, use of the reduced models from either formulation is not considered appropriate in future investigations of life satisfaction among call centre operators.

Social Contact and *Collective Purpose* were found to be the best set of linear predictors in the ACE model prediction of job satisfaction, suggesting that the three remaining ACE scales were redundant to this prediction. In contrast, the reduced PEI model comprised five of nine PEI scales, including *Valued Social Position* (and its associate, *Environmental Clarity*), *Variety*, *Opportunities for Skill Use*, *Physical Security* and *Money*, suggesting that only three of the PEI scales were not important to the prediction of job satisfaction.

Beyond Social Reference, the inclusion of scales relating to Job Scope and Environmental Clarity were also important to the reduced PEI model prediction of job satisfaction. The difference in stability of prediction was apparent upon between-samples comparisons of the reduced model predictions, within both formulations. The reduced ACE model prediction was not representative of the entire model prediction in sample one, and was marginally lower than the entire model prediction in sample two. By contrast, the reduced PEI model was equivalent to the entire model predictions of job satisfaction in

both samples. Therefore, while the reduced models in both formulations proved stable upon cross-validation to the observed values of job satisfaction in sample one, only the reduced PEI model could be considered a parsimonious representation of the entire PEI model predictions of job satisfaction in both samples. Therefore, consistent with the findings for the entire PEI model, the reduced PEI model was a better predictor of job satisfaction compared to the ACE model, a finding attributable to the extension of coverage to job characteristics. In the interests of parsimony, the reduced PEI model may be considered appropriate to use in further studies investigating job satisfaction among call centre operators.

6.5.3 Summary of Model Predictions

No significant between-models differences were found in extent of prediction of psychological distress or life satisfaction in either sample. However, the addition of clarity for how to derive social value in the work context, together with the importance of perceived control may have contributed to the consistently greater strength of prediction observed for the PEI model predictions of psychological distress. The addition of clarity for how to derive social value in the work context, and the availability of money were also considered to have led to greater stability in the PEI model prediction of life satisfaction, compared to the ACE model. The PEI model was a consistently stronger predictor of job satisfaction than the ACE model, attributable to the addition of variables relating to Job Scope.

6.6 The Relationship of Job Involvement to Job Satisfaction

Moving on from the prediction of psychological wellbeing, this section considers hypotheses specifically tested in sample two. These hypotheses were developed following the examination of sample one data, the anecdotal accounts of operators from this sample,

and consultation with the relevant literature. In particular, they were designed to examine how preferences for working fewer hours relate to job satisfaction (hypothesis five), and how job satisfaction was associated with commitment to ongoing tenure (hypothesis six).

6.6.1 Preferred Work Hours and Job Satisfaction

Respondents in sample one of the present study indicated low job satisfaction and one third of them were at risk of minor psychiatric morbidity. Anecdotal accounts from many of the respondents in sample one also indicated a preference to work fewer hours per week. If measured, the respondents in sample one might have indicated a preference to work fewer hours owing to difficulties keeping up with work demands for the duration of their current work schedule. Such a finding would be congruent with the Job Demands/Resources Model (Bakker et al., 2003) and the postulation of other call centre researchers who have indicated that as few as six hours per shift became strenuous (Klemann & Matuschek, 2002). Preferred work hours were subsequently investigated in sample two. If the sample two respondents also consider that the length of their shift made their work strenuous, then they may be more likely to report a preference to work fewer hours per working week, consistent with the health impairment hypothesis (e.g., Bakker et al., 2003). The energetic resources for call centre operators may be spent before the end of the shift, prompting many operators to prefer fewer hours.

While Krausz et al. (2000) reported the part-time workers in their sample worked an average of 61.5% of a full time load, all but five respondents in sample two of the present study worked at least 81.1% of a full time load. While only five of the 126 respondents in sample two reported a preference to work less than 30 hours, approximately half the sample indicated a preference to work fewer hours than they currently did. This finding was substantially (25%) less than the proportion of respondents indicating a preference for fewer hours in the Krausz et al (2000) study. On average, respondents in the

present study who indicated a preference to work fewer hours reported a preference to work around 30 hours per week.

Compared to respondents who indicated no difference in their actual and preferred hours, respondents who preferred to work fewer hours also reported significantly lower levels of job satisfaction, consistent with Krausz et al (2000). Accordingly, hypothesis five, that compared to operators indicating a preference to work their current number of hours per week, those operators who reported a preference to work fewer hours would be significantly less satisfied with their jobs, was supported.

The preference to work fewer hours was also negatively associated with length of tenure, implying that where they had been in the job longer, operators also tended to report a preference for fewer hours. In addition, a greater discrepancy between their actual and preferred hours was associated with lower job attachment. Taken together, these findings might constitute a withdrawal response to the seemingly arduous conditions of the call centre. More specifically, the depletion of energetic resources by the intensity of call work may lead to an aversive experience (including negative health outcomes) of the full-time schedule, prompting operators to prefer fewer hours. Evidence congruent with such a withdrawal response has also been reported outside the call centre. Krausz et al. (2000) found a preference to work fewer hours per week was associated with lower levels of job commitment and higher levels of depersonalisation, a factor of burnout (Leiter & Maslach, 1988).

Overall, considering the priority for job design in the New Labour Market is to achieve maximal energetic consumption per individual employee (e.g., Russell, 2002), the intensified work regime of call centre operators may actually exceed energetic resources in less than a full shift, less than a full time working week. The findings here suggest that preferences for fewer hours per working week were accompanied by lower ratings of job

satisfaction. Preferring to work fewer hours was also positively associated with withdrawal cognitions such as job attachment. Longitudinal data is required to investigate causality in the above explanation.

6.6.2 Tenure Commitment and Job Satisfaction

Given the low reported levels of job satisfaction in sample one, further questions were raised as to why operators remained in the job. For example, were they looking for employment alternatives outside the call centre – were they surviving the job in lieu of suitable alternatives? Furthermore, how long did they see themselves remaining in the job? The evidence from both models suggests that operators considered their daily routine provided few opportunities to derive social worth and to positively contribute to their community. In the context of these findings, an intrinsic motivation to help their disadvantaged customers seemed a less plausible explanation.

Investigating these issues upon inclusion of the second sample, nearly a quarter of the operators in sample two indicated they would leave their current jobs for alternative opportunities of work or study, even if it meant less money for a while. A smaller proportion of respondents reported considering a move to another call centre job for the same pay without hesitation. In addition, over half of the respondents in sample two reported that the job suited their current life circumstance, and that changing jobs would be too disruptive at that point in time. Out of the 126 respondents in sample two, 18 were positively attached to their job.

The majority of respondents in sample two also reported feeling that they were trapped in their current job due to the lack of alternative job opportunities ‘sometimes’ to ‘fairly often’. In addition to this finding, more than half the respondents in sample two also reported a projected job stay of less than two years, a third of them indicating less than twelve months. These findings are congruent with assertions of several call centre

researchers (Callaghan & Thompson, 2002; Russell, 2002; Taylor & Bain, 1999) who suggested that the flat hierarchy of the call centre and limited investment in future career opportunities may lead to shorter projections of future job tenure.

In the present study, commitment to ongoing tenure in the call centre was strongly and positively related to job satisfaction. Consistent with other call centre research (e.g., Grebner et al., 2003) where the respondents in sample two of the present study reported low tenure commitment, they also tended to report low job satisfaction. Accordingly, hypothesis six, that tenure commitment would be significantly positively related to job satisfaction was supported.

As discussed in chapter one, low organisational commitment among call centre operators is associated with increases in withdrawal cognitions (e.g., Bakker et al., 2003) and higher reported levels of turnover intent (De Ruyter et al., 2001). Further, the positive association between job satisfaction and organisational commitment (e.g., Cooper-Hakim & Viswesvaran, 2005; Grebner et al., 2003), and the link between lower job-related affective appraisals and higher rates of absence (e.g., Deery et al., 2002) suggests that low commitment to ongoing tenure may result in higher rates of withdrawal behaviour. Considering that withdrawal behaviour such as unplanned absences (sick leave) and actual turnover directly undermine the viability of the call centre business model (Higgs, 2004; Kessler, 2002), this issue requires further research.

Perhaps one of the more serious complications is where people do the job because there are few alternative opportunities for employment, due to lack of work experience and qualifications. Heightened job insecurity has been implicated as negatively affecting psychological wellbeing (Sparks et al., 2001; Strazdins, D'Souza, Lim, Broom & Rodgers, 2004). To quell the burgeoning sense of job insecurity perhaps brought about by self-acknowledged limitations in respect of employment mobility, people may endure aversive

experiences within the call centre operator work role to maintain their livelihood – at whatever long-term health cost.

On the other hand, it is noteworthy that anecdotal accounts from the operators in the present study suggested that not all the call centre operators indicated a negative experience of call work. Acknowledging problems with the pressure of work task operations, some operators had pre-determined goals of how long they would do it for, why they did it, and had seemingly built up resilience to the demands of the work in the context of that goal orientation. Also, those operators who had experience of other, more physically demanding types of employment seemed cognitively 'hardy' – able to put the conditions of employment in the call centre into a context of more aversive types of work. One operator who indicated previous employment as a 60 hour per week plant operator, found that sitting in the air-conditioned call centre with prescribed breaks and sick leave where required was an easier way to earn a living. Longitudinal data are required to follow the longevity and resilience of these perspectives as a buffer of stressors encountered in the call centre.

6.7 Conclusion

Compared to normative employed samples, call centre operators in both samples of the present study consistently reported higher levels of psychological distress and lower levels of job satisfaction. Upon closer inspection, the difference between the finding for job satisfaction in the present study and that of the normative data was attributable to lower satisfaction with operational factors within the work role (i.e., intrinsic job satisfaction). Approximately 38 years after the collection of data for the MSQ-SF standardisation sample, the main difference between the operators in the present study and the combined employed normative sample was limited to work role operations – satisfaction with work role governance and administration was no different. These findings suggest a negative impact from the job design principles of simplification and intensification promulgated by the New Labour Market in respect of job-related psychological wellbeing. Further, being employed has not guaranteed the call centre operators investigated in the present study optimal psychological wellbeing, contrary to the assertion by Jahoda (1981).

Despite, higher levels of psychological distress and lower levels of job satisfaction, operators in both samples of the present study reported moderate levels of life satisfaction, on average. While they were significantly more satisfied with their lives compared to the employed sample in Evans (1986), all three groups were interpreted as moderately satisfied. That said, the descriptive findings for life satisfaction were tainted by the limited response options on the rating scale, a methodological limitation addressed later. Overall, hypothesis one, that call centre operators would report lower levels of psychological wellbeing compared to normative data from other work roles was partially supported.

The ACE and PEI models were significantly predictive of psychological distress, life and job satisfaction in both samples, a replication of findings that supported hypotheses two and three. Addressing concerns by Olkin and Ingram (1995) that "…all too often,

conclusions are drawn about predictability in two populations without any formal statistical comparison of the multiple correlations" (p. 156), confidence intervals were calculated to assess between-models differences within each sample, and between-samples differences within each model, in extent of prediction of the measures of psychological wellbeing. Because some of the scales used to assess the PEI model share item content with scales used to assess the ACE model, entering both models sequentially in a regression model to determine significance in the change of R^2 was not considered appropriate, owing to substantial between-models multicollinearity. Comparing the models on strength and consistency, no difference was found in respect of the prediction of psychological distress, although the PEI model was a more consistent predictor of life satisfaction, and a consistently stronger predictor of job satisfaction a finding attributed to the inclusion of situational elements relating to Job Scope. Accordingly, hypothesis four, that compared to ACE, the PEI model would be a better predictor of psychological wellbeing was partially supported.

Evidence to suggest a problem of multicollinearity within the PEI model prediction of psychological wellbeing was apparent in two previous studies (e.g., Bryce & Haworth, 2003; Haworth et al., 1997). While collinearity diagnostics and bivariate inter-correlation matrices for the PEI model were not provided in these studies, the bivariate correlations and standardised regression coefficients suggested an interaction between the variables *Valued Social Position* and *Environmental Clarity*. Specifically, where the bivariate association with anxiety, general affective wellbeing and life satisfaction was higher for one of these variables, the other did not significantly contribute to the PEI model prediction. This occurred even though both variables held moderate to high bivariate correlations with the dependent measures mentioned above. In light of this evidence, the high inter-correlation between *Valued Social Position* and *Environmental Clarity* in both

samples of the present study, warranted special attention in the regression analyses involving the entire PEI model. Multicollinearity effects between these variables were observed in both samples of the present study, findings that varied between samples and between measures of psychological wellbeing. This finding has not previously been reported in respect of the PEI model, and calls into question the confidence that can be placed in interpretations arising from previous PEI model research.

Minimising the impact of multicollinearity effects, the situational elements of greatest importance to lower reported levels of psychological wellbeing were related to a theme of Social Reference, especially lower clarity for how to derive social value (through social contact, social status, and sense of enmeshment in a collective purpose) within the work context. Jahoda (1981, 1982, 1992) considered work as an important social institution that helped people to develop a connection between the individual and their community. Through social contact with others outside the family unit, through engagement in a social collective making a purposeful contribution towards the good of the community, and through the social esteem that comes with a reflection of individual's personal value to their community, work is said to fulfil a psychological need (Jahoda, 1992). In respect of the call centre operator work role, deprivation from these latent functions of work was predictive of poorer states of psychological wellbeing, suggesting that the importance of work as a social institution has been compromised.

Beyond Social Reference, the availability of money was also consistently predictive of life satisfaction, and the situational elements relating to Job Scope were consistently predictive of job satisfaction. While the importance of the availability of money to life satisfaction was explained through greater personal agency (e.g., Fryer, 1986), the explanation for the importance of job scope to job satisfaction lies with a consideration of the intrinsic value of call work to call centre operators. A low breadth of

tasks and fewer opportunities for the use and extension of existing skills suggests the call centre operator work role is restricted in factors important to intrinsic motivation (e.g., Houkes et al., 2003; Shaw & Gupta, 2004). The review of call centre operations provided in Chapter One suggests that call work is a repetitive, unchallenging and unstimulating work routine that is not likely to inspire an intrinsic motivation towards productivity targets. Therefore, the job design principle of simplification applied to call centre work appears to have limited the potential for workers to become inspired and driven towards the company purpose.

Approximately half of the operators in sample two of the present study reported a preference to work fewer hours than their current schedule, an indication of the intensity of the work regime. Compared to operators indicating a preference for their current schedule, those operators who indicated a preference to work fewer hours, were significantly less satisfied with their jobs, a finding that supported hypothesis five. The explanation proposed was that the intensity of the call handling routine depleted energetic resources before the end of the shift each day, leading to a subjective desire to work fewer hours. Thus, the findings may be considered consistent with the 'Health Impairment' hypothesis of Bakker et al. (2003), in that operators who wanted to work fewer hours may have not have the resources to cope with their current schedule, leading to lower levels of job-related psychological wellbeing.

The majority of respondents in sample two of the present study also indicated low job attachment, sometimes feeling trapped in the job due to lack of suitable alternatives and projections of tenure of less than two years. Additionally, where sample two respondents indicated low tenure commitment, they also reported low job satisfaction. Hypothesis six, that tenure commitment would be significantly positively associated with job satisfaction was supported. These findings were consistent with the strong association

in the literature between organisational commitment and job-related psychological wellbeing. This suggests that the majority of call centre operators maintained a low personal investment in the work role and considered their tenure in the job would be limited. The connection between low job satisfaction, low organisational commitment and withdrawal behaviour in the literature, suggests that the conditions of the call centres investigated in the present study need to be addressed in light of the potential for higher absence frequencies and rates of turnover – factors that threaten the financial viability of the call centre business model.

Overall, the evidence from the literature and the present study suggests that the simplification of call work has led to restrictions in Job Scope, and that the intensity of the work has resulted in low access to the socially relevant latent functions of work. In the present study, both of these factors were consistently predictive of poorer psychological wellbeing. In addition, the strong link between job-related psychological wellbeing and indicators of behavioural withdrawal from the work role, such as wanting to work fewer hours and reporting lower commitment to ongoing tenure, in the context of notoriously high absence frequencies and rates of turnover reported of call centres, suggest a need to review the job design of the call centre operator work role. Assuming the call centre operator work role epitomises job design in the New Labour Market, the findings of the present study also suggest the Taylorist job design principles of simplification and intensification require review in light of the potential impact upon workers in other types of work. Following a review of limitations of the present study and subsequent directions for future research, suggestions are made towards better stress management of current call centre practices. Finally, recommendations are provided to facilitate the enrichment of call work.

6.8 Methodological Concerns

6.8.1 Design

The design of the present study enabled a cross-sectional replication of model performance in accounting for the psychological wellbeing of call centre operators. While nearly all recent studies investigating call centre operators have been cross-sectional, investigating different organisational contexts and work roles, the present study aimed to increase the power of inference with respect to the performance of the models by eliminating variance potentially associated with different experiences of work attributable to factors such as context, governance and operational regime.

While this subsequently limits the generalisability of the present study to the population of interest "…simple generalisations that apply to all people will not be possible given the range of variables that can moderate the effects of being…employed" (Feather & O'Brien, 1986, p. 122). Further, the importance of studies that examine specific work roles is indicated by the findings of Sparks and Cooper (1999) who reported variance between occupations on measures including indicators of psychological wellbeing. More recently, Zapf et al. (2003) found evidence to suggest different experiences between types of call centres, organisational context and work role operations. Therefore, job-specific studies are more likely to result in a better understanding of the work role under investigation.

A potential limitation for the sampling procedure may be that it restricted the possible range of scores on the job characteristics measured. Indeed, the fact that both samples were drawn from the same organization within the public sector raises the possibility that employees of other call centres or indeed other types of work will experience different levels of the ACE categories and PEIs. Beyond limiting generalisability, there is also the potential for limiting the extent of correlation and

regression coefficients (Cohen et al., 2003). One way to detect whether this is having an effect on the correlation analyses is to check the shape of the frequency distributions for their similarity between the variables involved in the correlation analyses- the less similar, the more likely the problem of range restriction will limit the size of the correlation and regression coefficients. In the present study, this was done as part of the data screening process. As mentioned in Chapter Four, the data for the model and psychological wellbeing variables indicated no restrictions in the range of score frequencies, and that the data for these variables closely approximated the Guassian curve. In respect of ACE model variables, the standard deviations reported in both samples of the present study closely approximated the standard deviations reported for the variously employed public servants in the ACE study by Evans (1986). As such, the effect of range restriction appears to have been limited in respect of the ACE model. Unfortunately, there is no empirical data available with which to compare the present findings for the PEI model. While the potential threat of range restriction remains for the PEI model data in the present study, it is noted that the primary focus of the study was the analysis of regression coefficients- coefficients that are more robust and less influenced by the problems of range restriction (Cohen et al., 2003). Overall, it was considered that the statistical impact of range restriction upon the findings of the present study was limited.

6.8.1.1 Curvilinearity hypothesis of the PEI model

The drawback in magnifying the focus upon this particular population is the lack of sufficient coverage of other work roles that may enable a test of the proposed curvilinear hypotheses of the PEI model. Warr (1999) suggested that a large heterogeneous sample including work roles exposed to the entire range from very low to very high experience of the PEIs would be required to investigate the curvilinear relationships with

psychological wellbeing, a proposition indirectly supported by others (De Jonge & Schaufeli, 1998; Kelloway & Barling, 1991; Xie & Johns, 1995).

While Bryce & Haworth (2003) found a modest, non-linear association between Externally Generated Goals and job satisfaction in their female sample, the present study found the associations between this PEI variable and psychological distress, life or job satisfaction were best represented by a linear model. Given the restricted range of workload experience encountered by the call centre operators in the present study, the absence of any curvilinear relationships between the PEI variables and psychological wellbeing was not surprising.

6.8.2 Statistical Power

Commenting on the methodological necessity to consider the power of statistical inference in addition to statistical significance, Cohen (1992) – in a rather exasperated tone – observed "…it is as if the only concern about magnitude in much psychological research is with regard to the statistical test result…not with regard to the psychological phenomenon under study" (p. 155).

Cohen (1992) defined the statistical power of a significance test as the likelihood that given the population effect size, the chosen significance level and the number of participants, that the null hypothesis will not be rejected. Where statistical power is low the likelihood of accepting the null hypothesis is higher. For Cohen (1992) statistical power of less than 80% incurs "…too great a risk of a Type II error" (p.156).

Owing to a paucity of research investigating the ACE and PEI model predictions of psychological wellbeing in employed samples, an *a priori* effect size was

not available. Consequently, a determination of sample size required for adequate statistical power based on a previously reported effect size[1] was not possible.

Accordingly, the determination of adequate power of statistical inference was necessarily guided by the 'rule-of-thumb' for regression analyses provided by Tabachnick & Fidell (2001), who specified that to achieve 80% power of inference towards the interpretation of R^2 findings, the number of participants should be equal or greater than 50 plus 8*m* (where *m* = the number of predictors). In the present study this translated to at least 90 respondents for the ACE model, 122 for the PEI model. For Cohen (1992), an adequate sample for a medium effect size (≥.13, where α = .05) would contain 91 respondents for the ACE model and 111 for the PEI model analyses.

While the present study was designed *a priori* to meet these requirements, one of the two call centres involved withdrew their participation from the study three days prior to the data collection for sample one, due to an occupational health emergency. Consequently, the potential pool of respondents was halved, thereby reducing the power of inference in the statistical findings of sample one.

No such problems were encountered in engaging respondents for sample two. Of the 126 respondents in sample two, 15 had also participated in sample one, leaving an independent sample of 111 – meeting at least Cohen's criterion for medium effect size. Avoiding the potential for replacing statistical significance with another absolute criterion for statistical power, in light of Pedhazur and Schmelkin (1991), the replication of findings from sample one in sample two, together with the cross-validation of reduced model predictions in sample one suggests that the design employed here provided adequate statistical power of inference. Accordingly, a higher level of confidence may be given to the interpretation of findings in sample one that were replicated in sample two.

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[1] The population Effect Size (ES) for R^2 is estimated thus: $[R^2 / 1- R^2]$- see Cohen et al. (2003, p. 92) for a review.

6.8.3 Reliability of Methods

In accordance with 'Generalizability Theory' (Nunnally & Bernstein, 1994, p. 279), the present study has demonstrated a replication of findings between two independent samples of similarly homogeneous call centre operators. The present study may be considered to have elucidated 'external consistency' by providing a consistent profile of experience for call centre operators working within a prescribed organisational and operational context. As such, the methods of sample one may be considered reliable given the replication of descriptive findings in sample two.

6.8.3.1 Internal Consistency

While the .70 criterion is the widely accepted benchmark for 'adequate' alpha coefficients of internal consistency within a research context (Nunnally, 1978), researchers investigating alpha have reported that coefficients as low as .50 do not "seriously attenuate validity coefficients" (Schmitt, 1996, p. 350). As such, alpha coefficients reported in the present study falling within the range .70 to .50 were interpreted as acceptable in light of the problems with a larger covariance between item inter-correlations and item-total correlations of scales containing only a small number of items (Cortina, 1993).

6.8.3.1.1 Internal consistency of the ACE model.

With respect to the ACE model, the findings for coefficient alpha in both samples suggest that the ACE scales assessing *Social Contact*, *Collective Purpose* and *Social Status* held acceptable internal consistency in light of the acceptable range proposed above. The findings for the ACE scales assessing *Activity* and *Time Structure* in both samples suggest little consistency between items within each scale, calling into question their adequacy in respect of construct representation. In fact, some items were negatively related to other items within each of these scales suggesting that scale items may not be uniformly

contributing to the assessment of the underlying construct, prompting a need for review of item content of these scales, consistent with recommendations elsewhere (e.g., Creed & Machin, 2003).

6.8.3.1.2 Internal consistency of the PEI model.

Since increasing the number of items in a scale will generally increase coefficient alpha (Crichton, 2002; Nunnally & Bernstein, 1994) the PEI scales assessing *Valued Social Position* (six items) and *Externally Generated Goals* (seven items) were expected to demonstrate higher alpha coefficients than the smaller PEI scales. While this was certainly true of *Valued Social Position*, *Externally Generated Goals* was found to be the most internally inconsistent of any of the PEI scales using the alpha estimate of internal consistency, suggesting difficulties in respect of construct representation. Indeed, subsequent investigation of item inter-correlations revealed that some items within the *Externally Generated Goals* scale were negatively correlated with other items, suggesting scale items may not be uniformly contributing to the assessment of the underlying construct. It is noteworthy that this PEI scale was not found to be consistently associated with psychological wellbeing.

One of the items included in the scale assessing *Externally Generated Goals* – "Time often lies heavy on my hands" – seems particularly problematic for the call centre operator work role. For example, does it mean that the burden of time (sign-on, availability, call duration) is ever present – to which operators should respond in the affirmative, or does it mean that one has trouble finding things to fill time during the day – to which operators should respond in the negative? Investigating this item as part of the ACE scale *Activity* (where it originated), Creed and Machin (2003) found responses to it were highly variable and excluded it from further analyses. While the scrutiny of item

content within the PEI scales was beyond the scope of the present study, findings suggest the item content of this particular scale should be reviewed[2].

Of the remaining PEI domains, *Money*, *Physical Security*, *Variety*, *Opportunities for Interpersonal Contact* and *Environmental Clarity* held alpha coefficients greater than .50 in both samples and were considered interpretable with low but adequate internal consistency. Both *Opportunities for Skill Use* and *Opportunities for Control* fell beneath this range, also suggesting some difficulty with accurate construct representation. The breadth of coverage of the underlying constructs of these scales (job challenge and role autonomy) may result in low inter-item correlations and hence low internal consistency, ostensibly a product of the small size of these scales.

6.8.4 Limitations

The present study has several limitations in respect of the inferences drawn from the relationships between model and psychological wellbeing variables. First, while the replication design of similarly homogeneous samples of call centre operators enabled an analysis of consistency and stability of findings, both sets of data were considered cross-sectionally. As such, causal inferences cannot be drawn in respect of the influence of model variables upon psychological wellbeing. While a longitudinal design would better enable causal inference, such a design was considered beyond the time frame originally scheduled for the present study.

Second, the present study was limited by the reliance upon self-report measures that could potentially be affected by common method variance – where respondent reports of job characteristics are considered dependent upon their affective experience at work. However, while some researchers have indicated modest convergence between self-report ratings of job characteristics and job satisfaction (e.g., Spector & Jex, 1991), others have

[2] For advice on scrutiny of scale items, the interested reader is referred to the five steps towards covariance scaling provided by Armour (1974) and cited in Green, Lissitz, & Mulaik (1977). De Vaus (2002) also provides advice for scale building.

reported that the relationships between job characteristics and job-related psychological wellbeing (including job satisfaction) were not significantly affected by common method variance (Landeweerd & Boumans, 1994).

While there are no data available for investigations of this problem using the PEI model, previous research has found the items from the ACE scales to be independent of various measures of affective wellbeing, including psychological distress – assessed using the GHQ12 (Creed & Machin, 2003; Evans, 1986; Evans & Banks, 1992; Evans & Haworth, 1991) and life satisfaction – assessed using the TLS (Evans, 1986; Evans & Banks, 1992; Evans & Haworth, 1991). The consensus among these authors is that the ACE scale items assess environmental constructs rather than affective experience (Creed & Machin, 2003; Evans, 1986; Evans & Banks, 1992; Evans & Haworth, 1991).

A third limitation of the present study was the way in which some of the variables have been operationalised. The very low internal consistency for the scales *Activity*, *Time Structure* and *Externally Generated Goals* led to the overall conclusion that job demands were not adequately represented in the present study. A review of scale items for these scales is required.

In addition, the rating scale used in the MSQ-SF measures two aspects of affective experience in the work place – dissatisfaction and satisfaction. It is noteworthy that the original 1967 manual for the MSQ suggested trying two methods of scoring, the original scale upon which the standardisation sample responded (the same scale used in the present study) and a five point scale only assessing the degree of job satisfaction. An ascending five point Likert scale assessing level of satisfaction from very low to very high may provide a more thorough investigation of the degree of satisfaction, rather than condensing two affective states in one small scale – a direction for future research supported by the MSQ manual. Similarly, the TLS was limited in response options, as noted earlier. Where

respondents were sure they were not dissatisfied their only option was to indicate either moderate (or higher) levels of life satisfaction – they could not indicate low levels of life satisfaction (see Chapter Three).

6.8.4.1 Personality

While the present study investigated the influence of situational elements upon psychological wellbeing, it did so without assessing the potential influence of individual factors such as personality. One aspect of personality functioning that has attracted the attention of researchers in this field is the possibility of a disposition towards negative affectivity (e.g., Creed et al., 2001). While a high disposition towards negative affectivity has been implicated in higher reported levels of job dissatisfaction (e.g., Watson & Clark, 1984) and emotional exhaustion (e.g, Houkes et al., 2003), other research has reported no biasing effect on incumbent ratings of job characteristics (e.g., Spector et al., 1999; Spector & O'Connell, 1994). Spector et al. (1999) subsequently concluded that controlling for negative affectivity in investigations of the relationship between job characteristics and psychological wellbeing may result in misleading conclusions. Others have found that irrespective of personality disposition, job components have a significant impact on mental and physical wellbeing (Morrison, Dunne, Fitzgerald & Cloghan, 1992). The consensus of research investigating the call centre operator work role suggests that this is likely to be true of call centre operations (see Chapter One for a review). Further, it may be argued that the call centre operators investigated in the present study had already been recruited for their ability to handle the job, including a personality disposition that would most closely fit with the characteristics of the job. If this assumption is correct, the present findings might be all the more significant, showing a negative impact upon the psychological wellbeing of workers most capable of doing the work.

6.9 Recommendations

6.9.1 Directions for future research

Including the present study, cross-sectional designs have now adequately described problems that call centre operators have encountered. The consensus in the literature suggests a restricted routine that has been simplified into a repetitive and intense experience of work task process, with limited opportunities for skill or career development. Role stressors are associated with context-free and job-related aspects of psychological strain.

To determine whether these stressors cause psychological strain, a thorough baseline estimate of mental health and frequent follow-ups from commencement in the job through up to 3-4 years of tenure is required. To this end, a longitudinal study is required. In such a study, investigations of respondent characteristics might include 'hardiness' (e.g., Funk, 1992) and coping style (e.g., Lazarus, 1993; Lazarus & Folkman, 1984), investigating individual differences in how operators appraise their situations. In addition to the measures of context-free and job-related psychological wellbeing investigated here, other indices of mental health such as aspiration and flow (e.g., Warr, 1987) should also be considered to enable a broader conceptualisation of mental health. While the ACE and PEI models were found to be similarly predictive of context-free psychological wellbeing, it would be interesting to determine their relative efficacy in the prediction of other measures pertaining to a wider definition of mental health. In light of the call for attention to ACE and PEI scale inadequacies identified earlier, further examination of the comparative efficacy of the models in predicting job satisfaction and other measures of wellbeing at work is also warranted. Further, to limit the potential for range restriction upon future research, comparison groups less typical of the New Labour Market are required.

Kahn and Byosiere (1990) recommend that "…if we want to understand the relationship of work to health…we must take account of the larger context in which the work is enacted" (p. 638), a sentiment echoed by other researchers investigating the work-family conflict (e.g., Frone et al., 1997; Hyman et al., 2003). While measures to assess non-job factors relating to health were not included in the present study, the findings in respect of the call centre operators investigated by Hyman et al. (2003) suggests that the intensity of the work role has a negative influence on the hours after work. Such influence may spill over to difficulties with non-job role commitments (e.g., Frone et al., 1997). The relationship between job and non-job roles should therefore be considered in subsequent call centre research.

6.9.2 Stress Management Interventions in Call Centres

Stress Management Interventions (SMIs) aim to reduce the number or intensity of stressors (primary intervention), modify an individual's response to stressors (secondary intervention), or reduce the level of strain felt by the individual (tertiary intervention) as a consequence of exposure to stressors (for a review see Cooper et al., 2001). Evidence suggests that at the level of the individual, a combination of treatment techniques provides a more efficacious intervention than single treatment techniques in isolation (Bunce, 1997).

The largest investment made by businesses in respect of SMIs involves secondary interventions such as group stress management training as a preventative strategy (Giga, Noblet, Faragher, & Cooper, 2003), or time-limited 'one-to-one' counselling sessions (tertiary intervention) once strain has become evident (Dewe, 1994). These interventions were utilised in the call centres investigated in the present study.

In respect of primary interventions, while ergonomic design has minimised physical impedance to work process, the intensity of call centre operator work restricts or inhibits socially relevant processes that are considered necessary for optimal psychological

functioning (e.g., Jahoda, 1982, 1992). In the present study, restrictions to social reference and job scope were predictive of low job satisfaction, suggesting a need for job re-design, given the consequences in respect of withdrawal from the work role evident in the present study with the finding of low tenure commitment.

6.9.3 Changes to Call Centre Operations

Unless the economic benefits to current call centre operations are considered in light of costs associated with deficits in worker morale and poorer psychological wellbeing upon lower productivity and increasing withdrawal behaviour "…many potentially more humane and productive forms of work organization may continue to be overlooked…" (Karasek, 1979, p. 304). In collaboration with recent call centre research, the findings of the present study suggest that changes to the job design are required. In particular, enrichment of the work role should incorporate an increase in variety, complexity and control within the work routine (e.g., Bakker et al., 2003; Garcia, 1997; Grebner et al., 2003; Zapf et al., 2003), but also an increase in experiences of Social Reference. Primary interventions targeting these aspects of the call centre operator work role are likely to improve job-related psychological wellbeing, with associated benefits for improving commitment, job attachment and decreasing turnover.

An alternative to the current control-based managerial approach might embrace elements of a commitment-based rationality (Bijlsma-Frankema & Koopman, 2004). The commitment-based approach considers employees to be value-adding problem solvers who will (when inspired) show positive extra-role behaviours given autonomy and inspiration towards the collective purpose of the company (Bijlsma-Frankema & Koopman, 2004). This model involves operators more thoroughly in the business, fostering their commitment towards business goals, to enable a greater purpose in their work. To this end, Hash (2000b) recommends a transparency of revenue creation that encourages operators to

think about how their actions contribute to profit margins. In a similar vein, Garcia (1997) advocated for operator involvement in policy development and business decisions, including the setting of performance benchmarks. Grebner et al. (2003) agree with these recommendations, emphasising the need for job enrichment that might increase the perceived personal control over work process.

Enthusiastic about the merits of a customer relationship management perspective, Levin (1999a) advocated for change towards depth of customer relationships (longer interactions, assigning customers to operators to build extended relationships between operators and customers) rather than brief encounters in the interest of higher throughput of customer service episodes. Supportive of this view, Taylor et al. (2003) called for a "…wholesale review of targets…" (p.452) addressing the negative impact that current call handling regimes have on the occupational health of operators. The findings of the present study concur with this recommendation in light of satisfaction and commitment to the job, suggesting that current governance of the work role is too heavily weighted towards quantitative pressure, with little regard for work as a social institution or the need for stimulation through variety and skill development.

Levin (1999b) argued that allowing operators to provide consistent points of contact to develop ongoing business relationships with individual customers would contribute to satisfaction for both customer and operator. Such an arrangement is likely to reduce frustration for customers, inhibiting aggression towards operators owing to their ongoing relationship. It may also increase operator perceptions of social value, being able to carry relationships through multiple contacts – a perceptibly stronger contribution to their community.

Harris, Daniels, and Briner (2003) found job satisfaction was greater when the work achievements of the day that were personally meaningful for the operator. In respect

of the welfare business of the call centres investigated in the present study, if their work task units were qualitatively enlarged to provide a more comprehensive perception of help for populations within the customer base, operators may derive an intrinsically valuable experience from their work, leading to satisfaction with personal performance goals. It may also increase their sense of a positive contribution to community and social value – consistently strong predictors of job satisfaction in the present study.

In addition, operators are likely to feel more involved in their teams where management foster a cooperative environment rather than an individualised atmosphere of competition for performance statistics (Hash, 2000b). At the call centres investigated in the present study, team reviews that contain positive anecdotes of service will foster a sense of collective achievement towards the good of society. In addition, enhanced peer social support through these team reviews and established protocols for official debriefing following unpleasant customer encounters will prevent operators from being overly affected by the low points on the job (Hash, 2000b). These episodes of social support will provide more experiences of social contact at work, facilitating a greater social connection with fellow workers.

Following an enlargement of qualitative aspects of the role and the projected benefits to job satisfaction in respect of social reference experiences, managers could also alter practices within the call centre to increase the average length of tenure per operator. Balancing the business priority with staff needs, managers should allow a focus on the extension and development of existing skills as well as for career progression (Hash, 2000a).

According to O'Reilly and Pfeffer (2000: cited in Harville, 2001) better business performance comes from utilising the full extent of employee knowledge skills and abilities, engaging all available intellectual capital to collaboratively achieve the needs of

both the individual and the company. Levin (1999a) recommends individually tailored learning plans that take stock of skill resources not usually required of call work and utilise these resources in periodic opportunities for project work. Project work might include training or mentoring new recruits, liaising with external agencies to arrange stress management programs, coping skills training, relaxation classes, or on-site massage.

In a similar vein, Arrington (2000) advocates for lateral movement between content-specific information portals – for operators to learn other aspects of the business. For the call centres investigated in the present study, this may mean a universal people management policy (not simply a reward for high performers) that provides a rotation from the 'job search' section to the 'student assistance' team, through to 'retirements' and 'families' sections. This practice would have the benefit of growing knowledge of the business, priming the operators for careers beyond the call centre yet within the same organization – thereby retaining the company resource. These opportunities enhance the goals of the business as well as increase the variety of work and opportunities for skill use – two aspects of job scope found to be predictive of job satisfaction in the present study.

REFERENCES

Australian Broadcasting Corporation (2000). The business of change. Four Corners, Episode 28/08/2000. Retrieved November 20, 2002 from http://www.abc.net.au/4corners/archives/2000b_Monday28August2000.htm

ACA Research. (1998). *Australian Call Centre Report - Workplace Stress Study 1998.* Retrieved October 3, 2002 from http://www.callcentres.net/CALLCENTRES/LIVE/me.get?site.sectionshow& CALL160

ACA Research. (2001). *Australian Call Centre Industry Benchmark Survey: 2001*. Retrieved January 24, 2003 from http://www.callcentres.net/CALLCENTRES/LIVE/me.get?site.home&CALL142.

ACTU Call Centre Unions Group. (2001). *On the line: the future of Australia's call centre industry*. Retrieved January 26, 2003 from http://www.actu.asn.au/public/papers/ontheline.html.

Adelmann, P. K. (1987). Occupational complexity, control, and personal income: their relation to psychological well-being in men and women. *Journal of Applied Psychology, 72*, 529-537.

Agho, A. O., Price, J. L., & Mueller, C. W. (1992). Discriminant validity of measures of job satisfaction, positive affectivity and negative affectivity. *Journal of Occupational and Organizational Psychology, 65*, 185-196.

Aiello, J.R., & Kolb, K.J. (1995). Electronic performance monitoring and social context: Impact on productivity and stress. *Journal of Applied Psychology, 80*, 339-353.

Allen, N. J., & Meyer, J.P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology, 63*, 1-18.

Anderson, K. J., & Revelle, W. (1994). Impulsivity and time of day: is rate of change in arousal a function of impulsivity? *Journal of Personality and Social Psychology, 67*, 334-344.

Arnold, J. (1994). Opportunity for skill use, job changing and unemployment as predictors of psychological well-being amongst graduates in early career. *Journal of Occupational and Organizational Psychology, 67*, 355-370.

Arrington, E. (2000). Focus on skills development, rather than the next job. *Call Center Management Review, Special Issue: Career Development*, 3.

Ashforth, B.E., & Humphrey, R.H. (1993). Emotional labour in service roles: the influence of identity. *Academy of Management Review, 18*, 88-115.

Bagnara, S., & Marti, P. (2001). Human work in call centres: a challenge for cognitive ergonomics. *Theoretical Issues in Ergonomic Science, 2*, 223-237.

Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2003). Dual processes at work in a call centre: an application of the job demands – resources model. *European Journal of Work and Organizational Psychology*, *12*, 393-417.

Banks, M., Clegg, C., Jackson, P., Kemp, N., Stafford, E., & Wall, T. (1980). The use of the General Health Questionnaire as an indicator of mental health in occupational studies.*Journal of Occupational Psychology*, *53*, 187-194.

Baron, R. A. (1995). How environmental variables influence behaviour at work. In P. Collett, &A. Furnham (Eds.). *Social psychology of work: essays in honour of Michael Argyle* (pp. 176-205). London: Routledge.

Bijlsma-Frankema, K., & Koopman, P. (2004). The oxymoron of control in an era of globalisation: vulnerabilities of a mega myth. *Journal of Managerial Psychology*, *19*, 204-217.

Bizot, E. B., & Goldman, S. H. (1993). Prediction of satisfactoriness and satisfaction: an 8-year follow up. *Journal of Vocational Behavior*, *43*, 19-29.

Bledsoe, J., & Brown, S.E. (1977). Factor structure of the Minnesota Satisfaction Questionnaire. *Perceptual and Motor Skills*, *45*, 301-302.

Boswell, W.R., Olson-Buchanan, J.B., & LePine, M.A. (2004). Relations between stress and work outcomes: the role of felt challenge, job control, and psychological strain. *Journal of Vocational Behaviour*, *64*, 165-181.

Bramwell, R., & Cooper, C. L. (1995). VDUs in the workplace: psychological and health implications. In C. L. Cooper & I.T. Robertson, *International Review of Industrial and Organizational Psychology* (Vol. 10, pp. 213-227). London: Wiley & Sons.

Braverman, H. (1974). *Labor and monopoly capital: The degradation of work in the twentieth century*. New York: Monthly Review Press.

Brotheridge, C. M., & Grandey, A. A. (2002). Emotional labor and burnout: comparing two perspectives of "people work". *Journal of Vocational Behavior*, *60*, 17-39.

Brotheridge, C. M., & Lee, R. T. (2003). Development and validation of the emotional labour scale. *Journal of Occupational and Organizational Psychology*, *76*, 365-380.

Bruck, C. S., Allen, T. D., & Spector, P. E. (2002). The relation between work-family conflict and job satisfaction: a finer grain analysis. *Journal of Vocational Behavior, 60*, 336-353.

Bryant, G. (2002). Call centres connect with staff. *Business Review Weekly, May 30-June 5*, 54-57.

Bryce, J., & Haworth, J. T. (2003). Psychological well-being in a sample of male and female office workers. *Journal of Applied Social Psychology, 33*, 565-585.

Bryman, A., & Cramer, D. (1990). *Quantitative Data Analysis for Social Scientists*. London: Routledge.

Bunce, D. (1997). What factors are associated with the outcome of individual-focused worksite stress management interventions? *Journal of Occupational and Organizational Psychology, 70*, 1-17.

Burchman, S., & Schmitt, D. (2000). Understanding the costly threat of agent turnover. *Call Center Management Review, November Issue*, 9-10 / 18-19.

Byrne, D., & Reinhart, M. (1990). Self-reported distress, job dissatisfaction and the Type A behaviour pattern in a sample of full-time employed Australians. *Work and Stress, 4*, 155-166.

Callaghan, G., & Thompson, P. (2002). 'We recruit attitude': the selection and shaping of routine call centre labour. *Journal of Management Studies, 39*, 233-254.

Calnan, M., Wainwright, D., Forsythe, M., Wall, B., & Almond, S. (2001). Mental health and stress in the workplace: the case of general practice in the UK. *Social Science and Medicine, 52*, 499-507.

Campion, M.A. (1988). Interdisciplinary approaches to job design: A constructive replication with extensions. *Journal of Applied Psychology, 73*, 467-481.

Campion, M. A., & McClelland, C. L. (1993). Follow-up and extension of the interdisciplinary costs and benefits of enlarged jobs. *Journal of Applied Psychology, 78*, 339-351.

Caplan, R.D., & Jones, K.W. (1975). Effects of work load, role ambiguity, and Type A personality on anxiety, depression and heart rate. *Journal of Applied Psychology, 60*, 713-719.

Carsten, J., & Spector, P. (1987). Unemployment, job satisfaction and employee turnover: a meta-analytic test of the Muchinsky model. *Journal of Applied Psychology, 72*, 199-212.

Cartwright, S. (2000). Taking the pulse of executive health in the U.K. (workplace stress). *The Academy of Management Executive, 14*, 16-29.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied Multiple Regression/ Correlation Analysis for the Behavioral Sciences*. (3rd ed.). NJ: Lawrence Elbaum & Associates.

Cohen, S. (1978). Environmental load and the allocation of attention. In A. Baum, J. E. Singer, & S. Valins (Eds.). *Advances in Environmental Psychology, volume one: the urban environment* (pp. 1-29). NJ: Lawrence Erlbum & Associates.

Cohen, S. (1980). Aftereffects of stress on human performance and social behavior: A review of research and theory. *Psychological Bulletin, 88*, 82-108.

Cohen, S., & Wills, T. (1985). Stress, social support and the buffering hypothesis. Psychological Bulletin, *92*, 257-310.

Cohen, S, & Spacapan, S. (1978). The aftereffects of stress: An attentional interpretation. *Environmental Psychology and Nonverbal Behavior, 3*, 43-57.

COMTEX. (2003). CPSU campaign over call centre stress. (Press Release). *Australasian Business Intelligence, March 6 Issue*.

Connolly, J., & Viswesvaran, C. (2000). The role of affectivity in job satisfaction: a meta-analysis. *Personality and Individual Differences, 29*, 265-281.

Cooper, C. L., Dewe, P. J., O'Driscoll, M. P. (2001). *Organizational Stress: a review and critique of theory, research, and applications*. London: Sage Publications.

Cooper-Hakim, A., & Viswesvaran, C. (2005). The construct of work commitment: Testing an integrative framework. *Psychological Bulletin, 131*, 241-259.

Cortina, J. M. (1993). What is Coefficient Alpha? An examination of theory and applications. *Journal of Applied Psychology, 78*, 98-104.

Creed, P. A., & Machin, M. A. (2002). Access to the latent benefits of employment for unemployed and underemployed individuals. *Psychological Reports, 90*, 1208-1210.

Creed, P. A., & Machin, M. A. (2003). Multidimensional properties of the Access to Categories of Experience Scale. *European Journal of Psychological Assessment, 19*, 85-91.

Creed, P. A., & Macintyre, S. R. (2001). The relative effects of deprivation of the latent and manifest benefits of employment on the well-being of unemployed people. *Journal of Occupational Health Psychology, 6,* 324-331.

Creed, P. A., Muller, J., & Machin, M. A. (2001). The role of satisfaction with occupational status, neuroticism, financial strain and categories of experience in predicting mental health in the unemployed. *Personality and Individual Differences, 30,* 435-447.

Creed, P. A., & Watson, T. (2003). Age, gender, psychological wellbeing and the impact of losing the latent and manifest benefits of employment in unemployed people. *Australian Journal of Psychology, 55,* 95-103.

Crichton, N. (2002). Information point: coefficient alpha. Retrieved November 20, 2004 from www.blackwellpublishing.com/special articles/jcn_8_283.pdf

Daniels, K., Brough, P., Guppy, A., Peters-Bean, K. M., & Weatherstone, L. (1997). A note on a modification to Warr's measures of affective well-being at work. *Journal of Occupational and Organizational Psychology, 70,* 129-138.

Deery, S., Iverson, R., & Walsh, J. (2002). Work relationships in telephone call centres: understanding emotional exhaustion and employee withdrawal. *Journal of Management Studies, 39,* 471-496.

De Jonge, J., & Schaufeli, W. B. (1998). Job characteristics and employee well-being: a test of Warr's vitamin model in health care workers using structural equation modelling. *Journal of Organizational Behavior, 19,* 387-407.

Dewe, P. (1991). Measuring work stressors: the role of frequency, duration, and demand. *Work and Stress, 5,* 77-91.

Dewe, P. (1994). EAPs and stress management: from theory to practice to comprehensiveness. *Personnel Review, 23,* 21-32.

De Ruyter, K., Wetzels, M., & Feinberg, R. (2001). Role stress in call centers: its effects on employee performance and satisfaction. *Journal of Interactive Marketing, 15,* 23-35.

De Vaus, D. (2002). *Analysing Social Science Data: 50 key problems in data analysis.* London: Sage.

Diefendorff, J. M., & Richard, E. M. (2003). Antecedents and consequences of emotional display rule perceptions. *Journal of Applied Psychology, 88,* 284-294.

Divanna, J. A. (2003). *Thinking beyond technology: creating new value in business.* London: Palgrave McMillan.

Dormann, C., & Zijlstra, F.R.H. (2003). Call centres: high on technology – high on emotions. *European Journal of Work and Organizational Psychology, 12,* 305-310.

Duignan, K. (2003). In good voice. *Occupational Health, March Issue,* 25-27.

Einarsen, S. (2000). Harassment and bullying at work: A review of the Scandinavian approach. *Aggression and Violent Behavior*. *5,* 379-401.

Erickson, R. J., & Wharton, A. S. (1997). Inauthenticity and depression: assessing the consequences of interactive service work. *Work and Occupations, 24,* 188-213.

Evans, S.T. (1986). *Variations in activity and psychological well-being in unemployed young adults*. Unpublished Doctoral Dissertation, University of Manchester.

Evans, S. T., & Banks, M. H. (1992). Latent functions of employment: variations according to employment status and labour market. In C.H.A. Verhaar, & L.G. Jansma, M.P.M. de Goede, J.A.C. van Ophem, & A. de Vries. (Eds.). *On the mysteries of unemployment: causes, consequences and policies* (pp.281-295). Dordrecht, Netherlands: Kluwer Academic Publishers.

Evans, S., & Haworth, J. (1991). Variations in personal activity, access to categories of experience and psychological well-being in unemployed young adults. *Leisure Studies, 10,* 249-264.

Ezzy, D. (1993). Unemployment and mental health: A critical review. *Social Science and Medicine, 37,* 41-52.

Feather, N.T., & Bond, M.J. (1983). Time structure and the purposeful activity among employed and unemployed university graduates. *Journal of Occupational Psychology, 56,* 241-254.

Feather, N. T., & O'Brien, G. E. (1986). A longitudinal study of the effects of employment and unemployment on school-leavers. *Journal of Occupational Psychology, 59,* 121-144.

Fisher, S. (1989). Stress, control, worry prescriptions and the implications for health at work: a psychobiological model. In S. L. Sauter, J. J. Hurrell Jnr, & C. L. Cooper. (Eds.). *Job Control and Worker Health* (pp. 205-236). New York: Wiley.

Finlay-Jones, R. A., & Burvill, P. W. (1977). The prevalence of minor psychiatric morbidity in the community. *Psychological Medicine, 7,* 475-489.

Folkedal, J., Vaag, E., Halvari, H., & Svebak, S. (2000). Absenteeism and attitudes towards organizational change in a manufacturing industry with low ergonomic load. *North American Journal of Psychology, 2,* 357-378.

Frankenhaeuser, M., & Gardell, B. (1976). Underload and overload in working life: outline of a multidisciplinary approach. *Journal of Human Stress, 2*, 35-46.

Frankenhaeuser, M., & Johansson, G. (1976). Task demand as reflected in catecholamine excretion and heart rate. *Journal of Human Stress, 2*, 15-23.

French, J.R.P., Rogers, W., & Cobb, S. (1980). A model of person-environment fit. In L. Lennart (Ed.). *Society, Stress, and Disease* (Vol. 4, pp. 39-44). London: Oxford.

Frenkel, S., Tam, M., Korcynski, M., & Shire, K. (1998). Beyond Bureacracy? Work organisation in call centres. *International Journal of Human Resource Management*, *9*, 957-979.

Freud, S. (2002). *Civilisation and its discontents* (D. McLintock, Trans.). London: Penguin. (Original work published 1930).

Fried, Y., Ben-David, H. A., Tiegs, R. B., Avital, N., & Yeverechyahu, U. (1998). The interactive effect of role conflict and role ambiguity on job performance. *Journal of Occupational and Organizational Psychology*, *71*, 19-27.

Frone, M. R., Russell, M., & Cooper, M. L. (1997). Relation of work-family conflict to health outcomes: a four year longitudinal study of employed parents. *Journal of Occupational and Organizational Psychology*, *70*, 325-335.

Fryer, D. M. (1986). Employment deprivation and personal agency during unemployment: a critical discussion of Jahoda's explanation of the psychological effects of unemployment. *Social Behaviour*, *1*, 3-23.

Fryer, D. M. (1995). Labour market disadvantage, deprivation and mental health: benefit agency? *The Psychologist, June Issue,* 265-272.

Fukunaga, A., Hamilton, E., Fama, J., Andre, D., Matan, O., & Nourbakhsh, I. (2002). Staff scheduling for inbound call centers and customer contact centers. *AI Magazine*, *23*(4), 30-41.

Funk, S. C. (1992). Hardiness: a review of theory and research. *Health Psychology*, *11*, 335-345.

Garcia, J. (1997). How's your organizational commitment? *HR Focus, April Issue*, 23-24.

Garson, D. (2005). *Path Analysis*. Retrieved April 25, 2005 from http://www2.chass.ncsu.edu/garson/pa765.path.htm.

Geurts, S. A., Schaufeli, W. B., & Rutte, C. G. (1999). Absenteeism, turnover intention and inequity in the employment relationship. *Work and Stress, 13*, 253-267.

Giga, S.I., Noblet, A.J., Faragher, B., & Cooper, C.L. (2003). The UK perspective: a review of research on organisational stress management interventions. *Australian Psychologist, 38,* 158-164.

Gilmore, A. (2001). Call centre management: is service quality a priority? *Managing Service Quality, 11*, 153-159.

Goldberg, D., & Williams, P. (1988). *A user's guide to the General Health Questionnaire*. London: The NFER-Nelson Publishing Company, Ltd.

Goldberg, D., Gater, R., Sartorius, N., & Unstun, T. (1997). The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological Medicine, 27*, 191-197.

Gooch, E. (2002). ACTU seeks call centre controls. (Press Release). *Australasian Business Intelligence, July 24 Issue*.

Graetz, B. (1993). Health consequences of employment and unemployment: Longitudinal evidence for young men and women. *Social Science and Medicine, 36,* 715-724.

Grebner, S., Semmer, N. K., Faso, L. L., Gut, S., Kälin, W., & Elfering, A. (2003). Working conditions, well-being, and job-related attitudes among call centre agents. *European Journal of Work and Organizational Psychology, 12,* 341-365.

Green, S. B., Lissitz, R. W., & Mulaik, S. A. (1977). Limitations of coefficient alpha as an index of test unidimensionality. *Educational and Psychological Measurement, 37*, 827-838.

Gutierrez-Osuna, R. (2005). Introduction to pattern analysis, Lecture 13: Cross-validation. Retrieved April 25, 2005 from http://research.cs.tamu.edu/prism/lectures/pr/pr_l13.pdf.

Hackett, R. D. (1989). Work attitudes and employee absenteeism: a synthesis of the literature. *Journal of Occupational Psychology, 62,* 235-248.

Hackman, J.R., & Oldham, G.R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology, 60,* 159-170.

Hackman, J., & Oldham, G. (1976). Motivation through the design of work: test of a theory. *Organizational Behavior and Human Performance, 16,* 250-279.

Hair, J., Anderson, R., Tatham, R., & Black, W. (1998). *Multivariate data analysis*. (5th ed.). NJ: Prentice Hall.

Hallis. (2000). *Call centre staff turnover and benchmarking survey 1999/2000*. Melbourne: Hallis.

Hallis. (2004). *The Hallis 2003-2004 Turnover and Absenteeism Survey* [ABSTRACT]. Retrieved December 2, 2005 from http://www.hallis.com.au/research_surveys/reports.htm

Hammer,T., & Landau, J. (1981). Methodological issues in the use of absence data. *Journal of Applied Psychology, 66,* 574-581.

Hanse, J. J. (2002). The impact of VDU use and psychosocial factors at work on musculoskeletal shoulder symptoms among white-collar workers. *Work and Stress, 16,* 121-126.

Hardy, G., Shapiro, D., Haynes, C., & Rick, J. (1999). Validation of the General Health Questionnaire-12: Using a sample of employees from England's health care services. *Psychological Assessment, 11,* 159-165.

Hardy, G. E., Woods, D., & Wall, T. D. (2003). The impact of psychological distress on absence from work. *Journal of Applied Psychology, 38,* 306-314.

Harris, C., Daniels, K., & Briner, R.B. (2003). A daily diary study of goals and affective well-being at work. *Journal of Occupational and Organizational Psychology, 76,* 401-411.

Harville, D.L. (2001). Hidden value: how great companies achieve extraordinary results with ordinary people [BOOK REVIEW]. *Personnel Psychology, 54,* 725-727.

Hash, S. (2000a). Effective career progression programs balance both staff and business needs. *Call Centre Management Review, Special Issue: Career Development,* 6-9.

Hash, S. (2000b). Combating the negative effects of job stress in the call center. *Call Centre Management Review, October,* 1,3 & 18.

Haworth, J. T. (1997). *Work, leisure and well-being*. London: Routledge.

Haworth, J. T., & Ducker, J. (1991). Psychological well-being and access to categories of experience in unemployed young adults. *Leisure Studies, 10,* 265-274.

Haworth, J. T., Jarman, M., & Lee, S. (1997). Positive psychological states in the daily life of a sample of working women. *Journal of Applied Social Psychology, 27,* 345-370.

Haworth, J., & Paterson, F. (1995). Access to categories of experience and mental health in a sample of managers. *Journal of Applied Social Psychology, 25,* 712-724.

Heery, E. (1998). A return to contract? Performance related pay in a public service. *Work, Employment and Society, 12*(1), 73-95.

Heizer, J., & Render, B. (2004). *Operations Management*. (7th ed.). NJ: Pearson Education Inc.

Henwood, F., & Miles, I. (1987). The experience of unemployment and the sexual division of labour. In D. Fryer, & P. Ullah. (Eds.). *Unemployed people: Social and psychological perspectives* (pp. 94-110). Milton Keynes, England: Open University Press.

Hepworth, S.J. (1980). Moderating factors of the psychological impact of unemployment. *Journal of Occupational Psychology, 53*, 139-145.

Higgs, M. (2004). A study of the relationship between emotional intelligence and performance in UK call centres. *Journal of Managerial Psychology, 19*, 442-454.

Hinkle, D., Wiersma, W., & Jurs, S. (1988). *Applied statistics for the behavioural sciences*. (2nd ed.). Boston: Houghton Mifflin Company.

Hirsch, E.D.Jr., Kett, J.F., & Trefil, J. (2002). *The New Dictionary of Cultural Literacy* [Electronic Version]. Retrieved April 7, 2005 from http://www.houghtonmifflin books.com/epub/ culturallit.html.

Hobfoll, S. E. (1989). Conservation of Resources: a new attempt at conceptualising stress. *American Psychologist, 44*, 513-524 .

Hobfoll, S. E., Freedy, J., Lane, C., & Geller, P. (1990). Conservation of social resources: Social support resource theory. *Journal of Social and Personal Relationships. 7*, 465-478.

Hochschild, A.R. (1983). *The managed heart: Commercialization of human feeling*. Berkeley, CA: University of California Press.

Holman, D. J., Chissick, C., & Totterdell, P. (2002). The effects of performance monitoring on emotional labor and well-being in call centers. *Motivation and Emotion, 26*, 57-81.

Holman, D.J., & Wall, T.D. (2002). Work characteristics, learning-related outcomes, and strain: a test of competing direct effects, mediated and moderated models. *Journal of Occupational Health Psychology, 7*, 283-301.

Houkes, I., Janssen, P.P.M., De Jonge, J., & Bakker, A. (2003). Personality, work characteristics, and worker well-being: A longitudinal analysis of additive and moderating effects. *Journal of Occupational Health Psychology, 8*, 20-38.

Hurrell, J. J. Jnr, & McLaney, M. A. (1989). Control, job demands and job satisfaction. In S. L. Sauter, Hurrell, J. J. Jnr, & Cooper, C. L. (Eds.). *Job Control and Worker Health* (pp. 97-103). New York: Wiley.

Hurt, J. (2002). Danger on the line for call centre operators. (Press Release). *Australasian Business Intelligence, November 18 Issue*.

Hyman, J., Baldry, C., Scholarios, D., & Bunzel, D. (2003). Work-life imbalance in call centres and software development. *British Journal of Industrial Relations, 41*, 215-239.

Iaffaldano, M. T., & Muchinsky, P. T. (1985). Job satisfaction and job performance: a meta-analysis. *Psychological Bulletin, 97*, 251-273.

Isaksson, K. (1990). A longitudinal study of the relationship between frequent job change and psychological well-being. *Journal of Occupational Psychology, 63*, 297-308.

Isaksson, K., Hogstedt, C., Eriksson, C., & Theorell, T. (Eds.). (2000). *Health effects of the New Labour Market*. London: Kluwer Academic/ Plenum Publishers.

Iversen, L., & Sabroe, S. (1988). Psychological well-being among unemployed and employed people after a company closedown: a longitudinal study. *Journal of Social Issues, 44*, 141-152.

Jackson, S.E., Schwab, R.L., & Schuler, R.S. (1986). Towards an understanding of the burnout phenomenon. *Journal of Applied Psychology, 71*, 630-640.

Jahoda, M. (1979). The impact of unemployment in the thirties and seventies. *British Psychological Society Bulletin, 32*, 309-314.

Jahoda, M. (1981). Work, employment and unemployment: values, theories and approaches in social research. *American Psychologist, 36*, 184-191.

Jahoda, M. (1982). *Employment and unemployment: a social-psychological analysis*. London: Cambridge University Press.

Jahoda, M. (1992). Reflections on Marienthal and after. *Journal of Occupational and Organisational Psychology, 65*, 355-358.

Jahoda, M., Lazarsfeld, P., & Zeisel, H. (1972). *Marienthal: the sociography of an unemployed community*. London: Tavistock Publications.

Jahoda, M., & Rush, H. (1980). Work, employment and unemployment: an overview of ideas and research results in the social science literature. *Occasional Paper Series, 12*. Brighton, U.K.: Science Policy Research Unit, University of Sussex.

Jennifer, D., Cowie, H., & Ananiadou, K. (2003). Perceptions of and experience of bullying in five different working populations. *Aggressive Behavior, 29,* 489-496.

Johns, G. (2002). Absenteeism and mental health. In J.C. Thomas & M. Hersen (Eds.). *Handbook of Mental Health in the Workplace* (pp. 437-455). Thousand Oaks, CA: Sage

Judge, T.A., & Bono, J.E. (2001). Relationship of core self-evaluations traits – self-esteem, generalized self-efficacy, locus of control, and emotional stability – with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology, 86,* 80-92.

Judge, T.A., & Watanabe, S. (1993). Another look at the job satisfaction – life satisfaction relationship. *Journal of Applied Psychology, 78,* 939-948.

Kahn, R. L., & Byosiere, P. (1990). Stress in organizations. In M. D. Dunnette, & L. M. Hough. (Eds.). *Handbook of Organizational Psychology*. (Vol. 3, pp. 571-650). Palo Alto, CA: Consulting Psychologists Press.

Karasek, R.A. (1979). Job demands, job decision latitude, and mental strain: implications for job redesign. *Administration of Science Quarterly, 24,* 285-308.

Karasek, R. A. (1989). Control in the workplace and its health-related aspects. In S. L. Sauter, J. J. Hurrell Jnr, & C. L. Cooper. (Eds.). *Job Control and Worker Health* (pp. 129-159). New York: Wiley.

Karasek, R. A., & Theorell, T. (1990). *Healthy work, stress, productivity, and the reconstruction of working life*. New York: Basic Books.

Keller, R.T. (1984). The role of performance and absenteeism in the prediction of turnover. *Academy of Management Journal, 27,* 176-183.

Kelloway, E.K., & Barling, J. (1991). Job characteristics, role stress and mental health. *Journal of Occupational Psychology, 64,* 291-304.

Kerlinger, F.N., & Pedhazur, E.L.(1973). *Multiple Regression in Behavioral Research*. New York: Holt, Rinehart & Winston.

Kessler, I. (2002). Work flexibility in call centres enhances performance. *People Management, February Issue,* 54.

Kleeman, F., & Matuschek, I. (2002). Between Job and Satisfaction: motivations and career orientations of German "High Quality" call center employees. *Electronic Journal of Sociology, 6,* Article 002. Retrieved September 9, 2003 from www.sociology.org/content/vol006.002/Kleeman_Matuschek.

Knights, D., & McCabe, D. (2003). Governing through teamwork: reconstituting subjectivity in a call centre. *Journal of Management Studies, 40,* 1587-1619.

Korczynski, M. (2002). *Human Resource Management in Service Work.* London: Palgrave.

Krausz, M., Sagie, A., & Bidermann, Y. (2000). Actual and preferred work schedules and scheduling control as determinants of job-related attitudes. *Journal of Vocational Behavior, 56,* 1-11.

Landeweerd, J. A., & Boumans, N. P. G. (1994). The effect of work dimensions and need for autonomy on nurse's work satisfaction and health. *Journal of Occupational and Organizational Psychology, 67,* 207-217.

Lazarus, R.S., & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer.

Lazarus, R.S. (1993). Coping theory and research: Past, present and future. *Psychosomatic Medicine, 55,* 234-247.

Lee, R.T., & Ashforth, B.E. (1993). A further examination of managerial burnout: Toward an integrated model. *Journal of Organizational Behavior, 14,* 3-20.

Leiter, M.P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior, 9,* 297-308.

Lewig, K.A., & Dollard, M.F. (2003). Emotional dissonance, emotional exhaustion and job satisfaction in call centre workers. *European Journal of Work and Organizational Psychology, 12,* 366-392.

Levin, G. (1999a). The call center's critical role in customer relationship management. *Call Centre Management Review, December Issue,* 1 & 3.

Levin, G. (1999b). Managing internal agent attrition. *Call Centre Management Review, September* Issue, 1, 3 & 19.

Macdonald, W. (2003). The impact of job demands and workload on stress and fatigue. *Australian Psychologist, 38,* 102-117.

Maslach, C. (1982). *Burnout: the cost of caring*. New York: Prentice Hall.

Merton, R. K. (1957). *Social Theory and Social Structure*. Chicago: Free Press of Glencoe.

Meyer, J.P., & Allen, N.J. (1997). *Commitment in the workplace: Theory, research and application*. Thousand Oaks, CA: Sage.

Michaels, C., & Spector, P. (1982). Causes of employee turnover: a test of the Mobley, Griffeth, Hand, and Meglino model. *Journal of Applied Psychology*, *67*, 53-59.

Miles, I. (1983). *Adaptation to Unemployment*. Brighton, England: Science Policy Research Unit, University of Sussex.

Miles, I., & Howard, J. (1984). A study of youth employment and unemployment. Brighton, England: Science Policy Research Unit, University of Sussex.

Moore, A.W. (2001). Cross-validation for detecting and preventing over-fitting. http://www-2.cs.cmu.edu/~awm/tutorials/overfit09.pdf. Retrieved 25/05/05.

Moorman, R. H. (1993). The influence of cognitive and affective based job satisfaction measures on the relationship between satisfaction and organizational citizenship behavior. *Human Relations*, *46*, 759-776.

Morris, A.J., & Feldman, D.C. (1996). The dimensions, antecedents, and consequences of emotional labour. *Academy of Management Review*, *21*, 986-1010.

Morrison, D. L., Dunne, M. P., Fitzgerald, R., & Cloghan, D. (1992). Job design and levels of physical and mental strain among Australian prison officers. *Work and Stress*, *6*, 13-31.

Morrison, D.L., Upton, D.M. & Cordery, J.L. (1999). The role of supervisor behaviour in facilitating opportunies for skill development and utilisation. *Human Factors and Ergonomics in Manufacturing*, *9*, 49-67.

Mulholland, K. (2002). Gender, emotional labour and teamworking in a call centre. *Personnel Review*, *31*, 283-303.

Narayanan, L., Menon, S., & Spector, P. (1999). Stress in the workplace: a comparison of gender and occupations. *Journal of Organizational Behavior*, *20*, 63-74.

Near, J. P., Smith, C. A., Rice, R. W., & Hunt, R. G. (1984). A comparison of work and nonwork predictors of life satisfaction. *Academy of Management Journal*, *27*, 184-190.

Nixon, S. (2002). Call centre staff say their health is on the line. (Press Release). *Australian Business Intelligence, November 22 Issue*.

Norford, M. (2001). *Call centre staff attendance – stress management survey*. Unpublished paper released to call centre management.

Nunnally, J. C. (1978). *Psychometric Theory*. (2nd ed.). New York: McGraw-Hill.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory*. (Third ed..). New York: McGraw-Hill.

O'Brien, G. E. (1982a). Evaluation of the job characteristics theory of work attitudes and performance. *Australian Journal of Psychology, 34*, 383-401.

O'Brien, G.E. (1982b). The relative contribution of perceived skill-utilization and other perceived job attributes to the prediction of job satisfaction: A cross-validation study. *Human Relations, 35,* 219-237.

O'Brien, G. E. (1983). Skill-utilization, skill-variety and the job characteristics model. *Australian Journal of Psychology, 35,* 461-468.

O'Brien, S. (2003). Call centre bullies (Press Release). *Australasian Business Intelligence, October 19 Issue*.

O'Driscoll, M., & Beehr, T. (1994). Supervisor behaviours, role stressors and uncertainty as predictors of personal outcomes for subordinates. *Journal of Organizational Behavior, 15*, 141-155.

Olkin, I., & Finn, J. D. (1995). Correlations Redux. *Psychological Bulletin, 118,* 155-164.

Organ, D., & Near, J. (1985). Cognition vs affect in measures of job satisfaction. *International Journal of Psychology, 20*, 241-253.

Parker, S. (2003). Longitudinal effects of lean production on employee outcomes and the mediating role of work characteristics. *Journal of Applied Psychology, 88,* 620-634.

Parkes, K. (1991). Locus of control as moderator: an explanation for the additive versus interactive findings in the demand-discretion model of work stress?. *British Journal of Psychology, 82*, 291-302.

Payne, R. (2001). Measuring emotions at work. In R. Payne & C. L. Cooper (Eds.). *Emotions at Work: Theory research and applications for management* (pp. 116-117). Chichester, U.K.: Wiley.

Payne, R.L., & Fletcher, B.C. (1983). Job demands, supports, and constraints as predictors of psychological strain among school teachers. *Journal of Vocational Behavior, 22*, 136-147.

Payne, R.L., Wall, T.D., Borrill, C., & Carter, A. (1999). Strain as a moderator of the relationship between work characteristics and work attitudes. *Journal of Occupational Health Psychology, 4*, 3-14.

Pedhazur, E.J. (1982). *Multiple regression in behavioral research: Explanation and prediction*. (2nd ed.). New York: Holt, Rinehart, & Winston.

Pedhazur, E.J., & Schmelkin, L.P. (1991). *Measurement, design and analysis: An integrated approach*. Hillsdale, NJ: Lawrence Elbaum Associates.

Pernice, R., Trlin, A., Henderson, A., & North, N. (2000). Employment and mental health of three groups of immigrants to New Zealand. *New Zealand Journal of Psychology, 29*, 24-30.

Priest, M. (2003). Call centre firm restricts toilet trips (Press release). *Australasian Business Intelligence, April 27 Issue*.

Pugliesi, K. (1995). Work and well-being: gender differences in the psychological consequences of employment. *Journal of Health and Social Behavior, 36*, 57-71.

Quick, J. C., & Quick, J. D. (1984). *Organizational Stress and Prevention Management*. New York: McGraw-Hill.

Rain, J. S., Lane, I. M., & Steiner, D. D. (1991). A current look at the job satisfaction/ life satisfaction relationship: review and future considerations. *Human Relations, 44*, 287-307.

Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: the cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology, 79*, 410-424.

Russell, R. (2002). The talk shop and shop talk: Employment and work in a call centre. *The Journal of Industrial Relations, 44*, 467-490.

Saal, F., & Knight, P. (1988). *Industrial/Organizational Psychology*. Pacific Grove, CA, U.S.: Brooks/Cole.

Sargent, L. D., & Terry, D. J. (1998). The effects of work control and job demands on employee adjustment and work performance. *Journal of Occupational and Organizational Psychology, 71*, 219-236.

Sawyer, J., Dollard, M. F., & Farrin, J. (2002). Ergonomic awareness, work environment, health and job satisfaction in computer users. *Journal of Occupational Health and Safety, 18*, 247-257.

Schleicher, D. J., Watt, J. D., & Greguras, G. J. (2004). Re-examining the job satisfaction-performance relationship: the complexity of attitudes. *Journal of Applied Psychology, 89*, 165-177.

Schmitt, N. (1996). Uses and Abuses of Coefficient Alpha. *Psychological Assessment, 8*, 350-353.

Schwab, R.L., & Iwanicki, E.F. (1982). Perceived role conflict, role ambiguity, and teacher burnout. *Educational Administration Quarterly, 18*, 60-72.

Sczesny, S., Stahlberg, D. (2000). Sexual harassment over the telephone: Occupational risk at call centres [Abstract]. *Work and Stress*, *14*, 121-136.

Sevastos, P., Smith, L., & Cordery, J.L. (1992). Evidence on the reliability and construct validity of Warr's (1990) well-being and mental health measures. *Journal of Occupational and Organizational Psychology, 65*, 33-50.

Shaw, J.D., & Gupta, N. (2004). Job complexity, performance, and well-being: when does supplies-values fit matter? *Personnel Psychology*, *57*, 847-88.

Sheffield, D., Dobbie, D., & Carroll, D. (1994). Stress, social support, and psychological and physical wellbeing in secondary school teachers. *Work and Stress*, *8*, 235-243.

Singh, J., Goolsby, J. R., & Rhoads, G. K. (1994). Behavioral and psychological consequences of boundary spanning burnout for customer service representatives. *Journal of Marketing Research, 31*, 558-569.

Smith, A. P. (1992). Time of day and performance. In D. M. Jones & A. P. Smith (Eds.). *Handbook of Human Performance* (Vol. 3, pp. 217-236). London: Academic Press.

Smith, A. P. (1995). Determinants of human performance in organizational settings. In C. L. Cooper, & I. T. Robertson (Eds.). *International Review of Industrial and Organizational Psychology* (Vol. 10, pp. 49-73). London: Wiley & Sons.

Smith, A.P., Rusted, J.M., Eaton-Williams, P., Savory, M., & Leatherwood, D. (1991). Effects of caffeine given before and after lunch on sustained attention. *Neuropsychobiology*, *23*, 160-163.

Smith, M.J., & Amick, B.C. (1989). Electronic performance monitoring at the workplace: Implications for employee control and job stress. In S. L. Sauter, J. J. Hurrell Jnr, & C. L. Cooper. (Eds.). *Job Control and Worker Health* (pp. 275-289). New York: Wiley.

Smith, M. J., & Bayehi, A. D. (2003). Do ergonomics improvements increase computer workers' productivity?: an intervention study in a call centre. *Ergonomics*, *46*, 3-18.

Smith, M.J., Carayon, P., Sanders, K.J., Lim, S.Y., & LeGrande, D. (1992). Employee stress and health complaints in jobs with and without monitoring. *Applied Ergonomics*, *23*, 17-27.

Sparks, K., & Cooper, C. L. (1999). Occupational differences in the work-strain relationship: towards the use of situation-specific models. *Journal of Occupational and Organizational Psychology, 72*, 219-229.

Sparks, K., Cooper, C. L., Fried, Y., & Shirom, A. (1997). The effect of hours of work on health: a meta-analytic review. *Journal of Occupational and Organizational Psychology, 70*, 391-409.

Sparks, K., Faragher, B., & Cooper, C.L. (2001). Well-being and occupational health in the 21st century workplace. *Journal of Occupational and Organizational Psychology, 74*, 489-509.

Spector, P. E. (1997). *Job satisfaction: Application, assessment, causes, and consequences*. Thousand Oaks, CA: Sage.

Spector, P. E., Fox, S., & Van Katwyk, P. T. (1999). The role of negative affectivity in employee reactions to job characteristics: bias effect or substantive effect? *Journal of Occupational and Organizational Psychology, 72*, 205-218.

Spector, P. E., & Jex, S. M. (1991). Relations of job characteristics from multiple data sources with employee affect, absence, turnover intentions, and health. *Journal of Applied Psychology, 76*, 46-53.

Spector, P. E., & O'Connell, B. J. (1994). The contribution of personality traits, negative affectivity, locus of control and Type A to the subsequent reports of job stressors and job strains. *Journal of Occupational and Organizational Psychology, 67*,1-11.

Steptoe, A. (1989). Psychophysiological mechanisms relating control, coping and health. In S. L. Sauter, J. J. Hurrell Jnr, & C. L. Cooper. (Eds.). *Job Control and Worker Health* (pp. 191-204). New York: Wiley.

Stanton, J.M., & Barnes-Farrell, J.L. (1996). Effects of electronic performance monitoring on personal control, task satisfaction, and task performance. *Journal of Applied Psychology, 81*, 738-745.

Strazdins, L., D'Souza, R.M., Lim, L.L., Broom, D.H., & Rodgers, B. (2004). Job Strain, Job Insecurity, and Health: Rethinking the relationship. *Journal of Occupational Health Psychology, 9*, 296-305.

Sullivan, H.S. (1953). *Conceptions of modern psychiatry: The first William Alanson White memorial lectures*. (2nd ed.). New York: Norton.

Tabachnick, B.G., & Fidell, L.S. (2001). *Using Multivariate Statistics*. (4th ed.). Boston: Allyn & Bacon.

Taylor, F. W. (1997). *The Principles of Scientific Management*. Mineola, NY: Dover Publications. (Original work published 1911).

Taylor, P., & Bain, P. (1999). An assembly line in the head: the call centre labour process. *Industrial Relations Journal*, *30*, 101-117.

Taylor, P., Baldry, C., Bain, P., & Ellis, V. (2003). A unique working environment: health, sickness and absence management in UK call centres. *Work, Employment and Society*, *17*, 435-458.

Taylor, S. E., Repetti, R. L., & Seeman, T. (1997). Health psychology: what is an unhealthy environment and how does it get under the skin? *Annual Review of Psychology*, *48*, 411-447.

Tetrick, L. E., & LaRocco, J. M. (1987). Understanding, prediction, and control as moderators of the relationships between perceived stress, satisfaction, and psychological well-being. *Journal of Applied Psychology*, *72*, 538-543.

Thompson, B. (2003). Guidelines for authors reporting score reliability estimates. In B. Thompson (Ed.). *Score reliability: Contemporary thinking on reliability issues* (pp. 91-101). Thousand Oaks, CA: Sage.

Travers, C., & Cooper, C. (1993). Mental health, job satisfaction and occupational stress among UK teachers. *Work and Stress*, *7*, 203-219.

Tsai, M. (2000). Job satisfaction and the organization-person fit in Taiwan [Abstract]. *Dissertation abstracts International: Humanities and social sciences*, *60*(7A), 2583.

Turner, G.W. (1984). *The Australian Pocket Oxford Dictionary*. (2nd ed.). Melbourne: Oxford University Press.

UNISON. (2002). UNISON survey reveals call centre stress [Press release]. *The Safety & Health Practitioner*, *20*, 12.

URCOT. (2000). *Call centres: What kind of future workplaces?* [Monograph]. RMIT, Victoria, Australia.

Van Breukelen, W., Van der Vlist, & Steensma, H. (2004). Voluntary employee turnover: Combining variables from the 'traditional' turnover literature with the theory of planned behavior. *Journal of Organizational Behavior*, *25*, 893-914.

Van den Broek, D. (2002). Monitoring and surveillance in call centres: some responses from Australian workers. *Labour and Industry*, *12*, 43-58.

Van Veldhoven, M., Taris, T.W., De Jonge, J., & Broersen, S. (2005). The relationship between work characteristics and employee health and well-being: How much complexity do we really need? *International Journal of Stress Management, 12*, 3-28.

Varca, P. E., & James-Valutis, M. (1993). The relationship of ability and satisfaction to job performance. *Applied Psychology: An international review*. *42*, 265-275.

Veenhoven, R. (1996). Developments in satisfaction research. *Social Indicators Research*, *37*, 1-46.

Von Emster, G., & Harrison, A. (1998). Role ambiguity, spheres of control, burnout, and work-related attitudes to teleservice professionals. *Journal of Social Behaviour & Personality*, *13*, *375-385*.

Warr, P. B. (1987). *Work, unemployment and mental health*. Oxford: Oxford University Press.

Warr, P. B. (1990). The measurement of well-being and other aspects of mental health. *Journal of Occupational Psychology*, *63*, 193-210.

Warr, P. B. (1991). Mental health, well-being and job satisfaction. In B. Hesketh, & A. Adams (Eds.). *Psychological perspectives on occupational health and rehabilitation* (pp. 143-165). Sydney: Harcourt.

Warr, P. B. (1994). A conceptual framework for the study of work and mental health. *Work and Stress*, *8*, 84-97.

Warr, P. B. (1999). Well-being and the workplace. In. D. Kahneman, E. Diener, & N. Schwarz (Eds.). *Well-being: The foundations of hedonic psychology* (pp. 392-412). New York: Russell Sage Foundation.

Warr, P.B. (2002). The study of well-being, behaviour and attitudes. In P. B. Warr (Ed.). *Psychology at Work.* (5^{th} ed., pp. 1-25). London: Penguin.

Warr, P., Cook, J., & Wall, T. (1979). Scales for the measurement of some work attitudes and aspects of psychological wellbeing. *Journal of Occupational Psychology*, *52*, 129-48.

Watson, D., & Clark, L. A. (1984). Negative affectivity: the disposition to experience aversive emotional states. *Psychological Bulletin*, *96*, 465-490.

Weiss, D., Dawis, R., England, G., & Lofquist, L. (1967). *Manual for the Minnesota Satisfaction Questionnaire*. Minneapolis: University of Minnesota.

Werneke, U., Goldberg, D., Yalcin, I, & Uestuen, B. (2000). The stability of the factor structure of the General Health Questionnaire. *Psychological Medicine*, *30*, 823-829.

Whalen, J., Whalen, M., & Henderson, K. (2002). Improvisational choreography in teleservice work. *British Journal of Sociology*, *55*, 239-258.

Winefield, A. H., Tiggemann, M., & Winefield, H. R. (1991). The psychological impact of unemployment and unsatisfactory employment in young men and women: longitudinal and cross-sectional data. *British Journal of Psychology*, *82*, 473-486.

Winefield, A. H., Tiggemann, M., & Winefield, H. R. (1993). *Growing up with unemployment: A longitudinal study of its psychological impact*. London: Routledge.

Witt, L. A., Andrews, M. C., & Carlson, D. S. (2004). When conscientiousness isn't enough: Emotional exhaustion and performance among call centre customer service representatives. *Journal of Management*, *30*, 149-160.

Wright, I., Bengtsson, C., & Frankenberg, K. (1994). Aspects of psychological work environment and health among male and female white-collar and blue-collar workers in a big Swedish industry. *Journal of Organizational Behavior*, *15*, 177-183.

Xie, J.L., & Johns, G. (1995). Job scope and stress: Can job scope be too high? *Academy of Management Journal*, *38*(5), 1288-1309.

Zapf, D., Isic, A., Bechtoldt, M., & Blau, P. (2003). What is typical for call centre jobs? Job characteristics, and service interactions in different call centres. *European Journal of Work and Organizational Psychology*, *12*, 311-340.

Zapf, D., Vogt, C., Seifert, C., Mertini, H., & Isic, A. (1999). Emotion work as a source of stress: the concept and development of an instrument. *European Journal of Work and Organizational Psychology*, *8*, 370-400.

Zijlstra, F.R.H., Roe, R.A., Leonora, A.B., & Krediet, I. (1999). Temporal factors in mental work: effects of interrupted activities. *Journal of Occupational and Organizational Psychology, 72*, 163-185.

APPENDIX A: QUESTIONNAIRE

The James Cook University of North Queensland

School of Psychology

Thank you for agreeing to complete this questionnaire. The items ask about your current sense of wellbeing, and your satisfaction with your current occupation and lifestyle. Your responses are highly valued, and may assist in extending our knowledge of the impact of this type of work on your current experience of life. You are not required to give any identifying details, and the responses you do make will be anonymous amongst the responses of other participants. Outcomes from this research can in no way identify you individually, and will ONLY be derived from the combined results of the group. If however, you do not wish to participate in this project, you may elect not to complete the questionnaire at any stage. The questionnaire is likely to take approximately 20 minutes of your time. You do not have to answer a question if you do not want to. Your time and effort spent in support of this study would be greatly appreciated.

Demographic information:
The opening section of this questionnaire asks about your background, so that it can be put together with the responses of others with similar backgrounds. It will not identify you during the process of data collation.

1. How old are you? _____ (Years)

2. How many years have you spent in formal education? ___ (Years Equivalent Full Time study)

3. What sex are you (please circle one option)? Male or Female

4. How do you describe your background (please circle one option)?

(a) Australian (b) Indigenous Australian (c) Migrant Australian (d) Other

5. What is your marital status (please circle one option)?

(a) Married (b) *De facto* (c) Separated (d) Single

About your current Job:

6. How long have you worked with this company? _____ (Years, Months)

7. How long have you worked in this particular industry? _____ (Years, Months)

8. How many hours do you work in a typical working week? _____

9. How many hours would you prefer to work in a typical working week? _____

10. What is your current position arrangement in this job (please circle one option)?

    (a) Casual (no contract, you are called-in when needed)

    (b) Temporary (non-ongoing fixed term contract)

    (c) Permanent (on-going)

11. Which of the following statements best represents your attachment to your current job (please circle one option)?

    (a) If other opportunities arose (eg, a different job, career change, full-time study) I'd leave this job, even if it meant less money for a while

    (b) If a job in the same field was available outside this company at the same salary level, I'd leave without hesitation

    (c) This job suits my current life circumstance- it would be too disruptive to move to another job just now.

    (d) Even if I was offered another position outside this company for more money, I'd find it hard to leave

    (e) I would take a pay cut to keep this job because I believe in what we are trying to achieve as a company

12. How often do you feel as though you are trapped in this job by the lack of alternative employment opportunities (please circle one option)?

Very often	Fairly often	Sometimes	Rarely	Never
5	4	3	2	1

13. If it were up to you, how much longer would you stay in this job (please circle one option)?

less than 12mths up to 2 years more than 2 years Indefinitely

Life Satisfaction

This next section asks you to rate how satisfied you are with your life at present. Please consider the following aspects of your life as they seem to you at the moment.

Please circle the number on each scale, that best describes how satisfied you feel about the aspects of life satisfaction asked at each item.

How satisfied do you feel about**:**

14. The house or flat in which you live.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

15. The local district in which you live.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

16. Your standard of living: the things you can do or buy.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

17. The way in which you spend your leisure time.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

18. Your present state of health.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

19. The education that you have received.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

20. What you are accomplishing in life.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

21. What the future seems to hold for you.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

22. Your social life.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

23. Your family life.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

24. The present government.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

25. Taking everything together, your life as a whole these days.

Extremely Dissatisfied	Very Dissatisfied	Moderately Dissatisfied	Not Sure	Moderately satisfied	Very satisfied	Extremely satisfied
1	2	3	4	5	6	7

Environmental and Other Influences on Wellbeing

This next section asks for your responses on items that reflect sources of influence on wellbeing. Please circle the number that best describes your experience of the following items.

Finances:

26. How easy is it to manage on the money that you receive?

Very Difficult	Fairly Difficult	Neither Easy Nor Difficult	Fairly Easy	Very Easy
1	2	3	4	5

27. How often do you find that a shortage of money stops you engaging in activities?

Very often	Fairly often	Sometimes	Rarely	Never
1	2	3	4	5

28. How often do you feel that you have to refuse invitations from your friends through not having enough money?

Very often	Fairly often	Sometimes	Rarely	Never
1	2	3	4	5

Physical security:

29. Do you ever experience difficulty in concentrating (e.g., when doing a task) due to any of the following (Please circle the appropriate number of from 1 to 7):

	Never						Very Often
Discomfort of Temperature	1	2	3	4	5	6	7
Too much noise	1	2	3	4	5	6	7
Poor lighting	1	2	3	4	5	6	7

30. Do you ever feel threatened in some way?

Never						All the time
1	2	3	4	5	6	7

31. What sort of things cause you to feel threatened?_____
_____

32. Would you say that in general, the world is a safe place to live?

Extremely Unsafe		Uncertain				Very Safe
1	2	3	4	5	6	7

Use of time:

This set of questions asks about your use of time on a day-to-day basis. Please <u>circle one number</u> on each scale that best represents your level of agreement with the statements below.

	Completely Disagree			Neither Agree nor Disagree			Completely Agree
33. My time is filled with things to do.	1	2	3	4	5	6	7
34. Much of the day, I can choose the way in which I carry out my tasks.	1	2	3	4	5	6	7
35. In the things I do, I usually know the kind of results I will get.	1	2	3	4	5	6	7
36. Much of the day I have things to do at regular times.	1	2	3	4	5	6	7
37. I usually like to plan and organise the way I spend my time.	1	2	3	4	5	6	7

	Completely Disagree			Neither Agree nor Disagree			Completely Agree
38. I feel as though I am learning a great deal.	1	2	3	4	5	6	7
39. I don't really feel that I am 'stretched' in my everyday life.	1	2	3	4	5	6	7
40. Time often lies heavy on my hands	1	2	3	4	5	6	7
41. My life varies greatly from day-to-day	1	2	3	4	5	6	7
42. I am always doing new things and visiting different places.	1	2	3	4	5	6	7
43. Most things I do, I do well.	1	2	3	4	5	6	7
44. I sometimes think I am not very competent.	1	2	3	4	5	6	7
45. I like to set myself challenging targets.	1	2	3	4	5	6	7
46. Things I have to do keep me busy most of the day.	1	2	3	4	5	6	7
47. I very rarely need to be punctual.	1	2	3	4	5	6	7
48. I don't feel I can personally influence aspects of my job, such as wages, hours or company policy.	1	2	3	4	5	6	7
49. I rarely get the chance to develop new skills at work.	1	2	3	4	5	6	7
50. I think that I am able to respond to tasks effectively.	1	2	3	4	5	6	7
51. I rarely have to deal with conflicting demands.	1	2	3	4	5	6	7
52. My work provides me with many targets/goals that I have to try and achieve.	1	2	3	4	5	6	7
53. I often have to undertake difficult tasks.	1	2	3	4	5	6	7
54. I carry out a wide range of duties in an average day.	1	2	3	4	5	6	7

	Completely Disagree			Neither Agree nor disagree			Completely Agree
55. I am able to experience pleasant changes in my work environment during the day.	1	2	3	4	5	6	7

Social Contact:
This set of questions asks about your everyday social contact. To what extent do you agree that:

	Completely Disagree			Neither Agree nor disagree			Completely Agree
56. Most days I meet quite a range of people	1	2	3	4	5	6	7
57. I sometimes feel that people are looking down on me	1	2	3	4	5	6	7
58. Society in general respects people like me	1	2	3	4	5	6	7
59. I don't get to meet many people regularly	1	2	3	4	5	6	7
60. I see a lot of my work-mates	1	2	3	4	5	6	7
61. I have to do what other people want a lot of the time.	1	2	3	4	5	6	7
62. People often rely on me to turn up at the right time.	1	2	3	4	5	6	7
63. People often talk things over with me.	1	2	3	4	5	6	7
64. I have one or more friends who I am close to and share a lot with.	1	2	3	4	5	6	7

The wider society:
The next set of questions asked about your relations with the wider society.
To what extent do you agree that:

	Completely Disagree			Neither Agree nor disagree			Completely Agree
65. I am doing things that need doing by somebody	1	2	3	4	5	6	7
66. I am not very interested in the world around me	1	2	3	4	5	6	7
67. Sometimes I feel like I am on the scrap-heap	1	2	3	4	5	6	7
68. At this time in my life I feel that I am making a positive contribution to society at large.	1	2	3	4	5	6	7

	Completely Disagree			Neither Agree nor disagree			Completely Agree
69. Nothing I'm involved in has much value for many people.	1	2	3	4	5	6	7
70. Sometimes I just can't see where to go in my life	1	2	3	4	5	6	7
71. Sometimes I feel I don't really know what people expect of me.	1	2	3	4	5	6	7
72. The most important things that happen to me are as much due to luck as to planning.	1	2	3	4	5	6	7
73. I feel I am pressurised into participating in many of the activities I do.	1	2	3	4	5	6	7

Please go on to the next page.

General health and Well Being

This next section asks you to indicate how things have been going for you in recent times. Please tick the box that best describes how you have been feeling lately:

HAVE YOU RECENTLY …

74. been able to concentrate on whatever you're doing?	*Better than usual*	*Same as usual*	*Less than usual*	*Much less than usual*
75. lost much sleep over money?	*Not at all*	*No more than usual*	*Rather more than usual*	*Much more than usual*
76. felt that you are playing a useful part in things?	*More so than usual*	*Same as usual*	*Less than usual*	*Much less than usual*
77. felt capable of making decisions about things?	*More so than usual*	*Same as usual*	*Less than usual*	*Much less than usual*
78. felt constantly under strain?	*Not at all*	*No more than usual*	*Rather more than usual*	*Much more than usual*
79. felt you couldn't overcome your difficulties?	*Not at all*	*No more than usual*	*Rather more than usual*	*Much more than usual*
80. been able to enjoy your normal day-to-day activities?	*More so than usual*	*Same as usual*	*Less than usual*	*Much less than usual*
81. been able to face up to your problems?	*More so than usual*	*Same as usual*	*Less than usual*	*Much less than usual*
82. been feeling unhappy and depressed?	*Not at all*	*No more than usual*	*Rather more than usual*	*Much more than usual*
83. been losing confidence in yourself?	*Not at all*	*No more than usual*	*Rather more than usual*	*Much more than usual*
84. been thinking of yourself as a worthless person?	*Not at all*	*No more than usual*	*Rather more than usual*	*Much more than usual*
85. been feeling reasonably happy, all things considered?	*More so than usual*	*Same as usual*	*Less than usual*	*Much less than usual*

Work Satisfaction

This section gives you a chance to tell **how you feel about your present job**, what things you are satisfied with and what things you are not satisfied with. Please circle one number on each scale to indicate your level of satisfaction for each of the following statements as they apply to your work.

On my present job, this is how I feel about…

86. being able to keep busy all the time

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

87. the chance to work alone on the job

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

88. the chance to do different things from time to time

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

89. the chance to be "somebody" in the community

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

90. the way my boss handles his/her workers

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

91. the competence of my supervisor in making decisions

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

92. being able to do things that don't go against my conscience

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

93. the way my job provides for steady employment

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

On my present job, this is how I feel about…

94. the chance to do things for other people

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

95. the chance to tell people what to do

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

96. the chance to do something that makes use of my abilities

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

97. the way company policies are put into practice

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

98. my pay and the amount of work I do

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

99. the chances for advancement on this job

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

100. the freedom to use my own judgement

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

101. the chance to try my own methods of doing the job

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

102. the working conditions

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

On my present job, this is how I feel about…

103. the way my co-workers get along with each other

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

104. the praise I get for doing a good job

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

105. the feeling of accomplishment I get from the job

Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied
1	2	3	4	5

A pilot study was conducted with the Townsville Call Centre in February 2001. Please indicate here whether or not you participated in that particular study:

Did you participate in the pilot study in February 2001? Yes / No

Thank you for participating in this study.

Please deposit the completed questionnaire in the secure box provided. A summary of the findings will be made available through your Team Leader upon conclusion of this research.

APPENDIX B: ACE SCALE ITEM CONTENT

Activity:	My time is filled with things to do
	Time often lies heavy on my hands *(reverse scored)*
	Things I have to do keep me busy most of the day
Social Contact:	Most days I meet quite a range of people
	I don't get to meet many people regularly *(reverse scored)*
	I see a lot of my work-mates
Collective Purpose:	Nothing I'm involved in has much value for many people *(reverse scored)*
	At this time in my life I feel that I am making a positive contribution to society at large
	I am doing things that need doing by somebody
Social Status:	I sometimes feel that people are looking down on me *(reverse scored)*
	Society in general respects people like me
	Sometimes I feel like I am on the scrap-heap *(reverse scored)*
Time Structure:	Much of the day I have things to do at regular times
	I very rarely need to be punctual *(reverse scored)*
	People often rely on me to turn up at the right time

APPENDIX C: PEI SCALE ITEM CONTENT

Money:

How easy is it to manage on the money that you receive?

How often do you find that a shortage of money stops you engaging in activities? *(reverse scored)*

How often do you feel that you have to refuse invitations from your friends through not having enough money? *(reverse scored)*

Physical Security:

Do you ever experience difficulty in concentrating due to any of the following: discomfort of temperature / too much noise / poor lighting *(reverse scored)*

Do you ever feel threatened in some way? *(reverse scored)*

Would you say that in general, the world is a safe place to live?

Valued Social Position[1]:

Nothing I'm involved in has much value for many people *(reverse scored)*

At this time in my life I feel that I am making a positive contribution to society at large

I am doing things that need doing by somebody

I sometimes feel that people are looking down on me *(reverse scored)*

Society in general respects people like me

Sometimes I feel like I am on the scrap-heap *(reverse scored)*

[1] Items for Valued Social Position were taken from the ACE scales Social Status and Collective Purpose.

Opportunities for Interpersonal Contact:	Most days I meet quite a range of people
	I don't get to meet many people regularly *(reverse scored)*
	I see a lot of my work-mates
	I have one or more friends who I am close to and share a lot with
Externally Generated Goals:	My time is filled with things to do
	I rarely have to deal with conflicting demands *(reverse scored)*
	My work provides me with many targets/goals that I have to try and achieve
	I often have to undertake difficult tasks
	Much of the day I have things to do at regular times
	Time often lies heavy on my hands *(reverse scored)*
	People often rely on me to turn up at the right time
Environmental Clarity:	In the things I do, I usually know the kind of results I will get
	Sometimes I just can't see where to go in my life *(reverse scored)*
	People often talk things over with me
	Sometimes I feel I don't really know what people expect of me *(reverse scored)*
Opportunities for Control:	Much of the day, I can choose the way in which I carry out my tasks
	I usually like to plan and organise the way I spend my time
	I don't feel I can personally influence aspects of my job, such as wages, hours or company policy *(reverse scored)*
	I have to do what other people want a lot of the time *(reverse scored)*

Opportunities for Skill Use:

I feel as though I am learning a great deal

I rarely get the chance to develop new skills at work *(reverse scored)*

I don't really feel that I am 'stretched' in my everyday life *(reverse scored)*

I think that I am able to respond to tasks effectively

Variety:

My life varies greatly from day-to-day

I carry out a wide range of duties in an average day

I am always doing new things and visiting different places

I am able to experience pleasant changes in my work environment during the day